SPECIAL INSPECTIONS:

IMPLEMENTATION IN FAIRFAX COUNTY

1996 Edition

Effective: April 15, 1997

Administered by

COUNTY OF FAIRFAX, VIRGINIA

DEPARTMENT OF ENVIRONMENTAL MANAGEMENT

DIVISION OF INSPECTION SERVICES

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ACKNOWLEDGMENTS

The Department of Environmental Management Division of Inspection Services expresses its appreciation for the assistance of all individuals and organizations who contributed to the creation of **"Special Inspections: Implementation in Fairfax County/1996 Edition"**.

NOTE TO USERS

Vertical lines in the margins indicate approved changes to the text of **"Special Inspections: Implementation in Fairfax County/1996 Edition"**.

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CHAPTER 1
THE FAIRFAX COUNTY SPECIAL INSPECTIONS PROGRAM

INTRODUCTION

The Fairfax County Special Inspections Program (formerly called the Critical Structures Program) was established by the Fairfax County Board of Supervisors in 1973, after the collapse of a 26-story concrete structure under construction, to monitor high-rise construction projects in Fairfax County. Since 1973, the Program has evolved to encompass all major commercial construction projects. The Special Inspections Program is administered by the **Fairfax County Critical Structures Section (FCCSS)** of the Commercial Inspections Branch of the Division of Inspection Services in the Department of Environmental Management (DEM).

Special Inspections were first incorporated into the BOCA National Building Code (BNBC) and adopted by the Virginia Uniform Statewide Building Code (VUSBC) in the 1990 edition. In the 1996 edition, effective April 15, 1997, revisions have been made to the requirements for Special Inspections in the BNBC and the VUSBC.

This document, "**Special Inspections: Implementation in Fairfax County/1996 Edition**", hereafter called the "**Special Inspections Document**", implements the requirements of BNBC Section 1705.0: "*Special Inspections*", as amended by the VUSBC. The Special Inspections Document contains technical requirements of the VUSBC and its referenced standards, the policies and procedures underpinning the Special Inspections Program in Fairfax County, and descriptions of the roles and responsibilities of all parties involved in special inspections. **The Special Inspections Document is intended to be used in conjunction with the VUSBC.** Construction for which a permit application is submitted after April 15, 1997 shall comply with the provisions of this Special Inspections Document, except when *construction documents* for proposed construction were substantially complete prior to the above date and a permit application is submitted within one year after the above date. In such cases, construction shall comply with either the provisions of this Special Inspections Document or the provisions of the Special Inspections Manual/1993 Edition.

The Special Inspections Program is based on the engineering and industry standards adopted by the Virginia Board of Housing and Community Development as a part of the VUSBC. These standards are promulgated by nationally recognized organizations such as the American Iron and Steel Institute (AISI); the American Institute of Steel Construction (AISC); the Portland Cement Association (PCA); the National Concrete Masonry Association (NCMA); the American Concrete Institute (ACI) and the Brick Institute of America (BIA). The requirements for special inspections and materials testing contained in the VUSBC and these standards can be categorized as follows:

- Inspections and testing to ensure adequacy of the fabrication process, e.g., quality of pre-manufactured steel beams.
- Inspections and testing to ensure adequacy of construction materials and their installation, e.g., strength of cast-in-place concrete.
- Inspections and testing to ensure adequacy of site construction techniques, e.g.,

protection of concrete during cold weather periods, quality of field welding of structural connections, etc.

The above standards do not specify who should perform special inspections. The VUSBC gives localities in the Commonwealth two options: utilize municipal code enforcement personnel; or allow a firm independent of the contractor to provide required services. In creating the Special Inspections Program, the latter alternative was chosen for several reasons:

- This alternative provides scheduling flexibility and minimizes delays during the construction process. A contractor does not have to wait for County inspectors to proceed with each stage of construction.
- With the increased level of inspection services provided by a licensed professional, the probability of structural failure is reduced.
- Owners realize cost savings by retaining the engineering firm they deem most qualified to respond to unforeseen circumstances, abide by the owner's construction schedule, and provide special inspection and testing services. The cost of the inspection and testing program is borne directly by the owners of buildings rather than the County.

The purpose of the Special Inspections Document is to:

- Clearly define the responsibility of all parties.
- Standardize code application.
- Provide for an orderly and systematic approach for updating standards which apply to the Special Inspections Program.
- Ensure that modifications to the Program are uniformly applied throughout the County.

The Special Inspections Document employs a system of chapters or procedural outlines identifying the purpose, responsibility, time requirements, and scope of various activities. The Special Inspections Document shall be employed throughout the life of the project and a copy shall be available at the job site office from the time of the **FCCSS** preconstruction meeting through final inspections prior to occupancy.

- At the preconstruction meeting, parties to the meeting shall sign an acknowledgment of the *Statement of Special Inspections* (SSI) which identifies the special inspections requirements for the project.
- The provisions of this Special Inspections Document do not relieve any participant from the proper performance of work according to contracts, plans, specifications, the VUSBC and the applicable federal and state safety regulations.

Modifications to the Special Inspections Program are issued on an as-needed basis:

- Proposed modifications shall be advertised for public comments.
- Each page shall carry the date of issue as a means of identification. Modifications to the Special Inspections Document resulting from VUSBC code changes shall become effective immediately upon issuance.
- A cover letter transmitting the new or revised pages, chapters and Table of Contents

shall clearly identify the implementation date and shall indicate where the modifications are to be inserted into the Special Inspections Document.

THE SPECIAL INSPECTIONS ENGINEER OF RECORD

Under the Special Inspections Program, the ***Owner*** of a building or the *Owner*'s duly authorized representative shall employ an independent registered professional engineer. The professional engineer, referred to as the ***Special Inspections Engineer of Record*** **(SIER)**, provides special inspections as required herein. The role of County staff is to ensure that the work of the **SIER** and the *Inspection and Testing Agency* supervised by the **SIER** is conducted in compliance with the requirements of the Special Inspections Program and this Special Inspections Document.

The **SIER** has the responsibility to ensure that special inspections are conducted in accordance with and meet the requirements of BNBC Section 1705.0 as amended by the VUSBC. At the completion of the project, but prior to issuance of a *Non-Residential Use Permit* (Non-RUP), the **SIER** must submit a *Final Report of Special Inspections*.

CHAPTER 2
DEFINITIONS AND ABBREVIATIONS

SIFC-201.0 DEFINITIONS

The following words and terms shall, for the purposes of this Special Inspections Document, have the meanings shown in this chapter. Terms not defined in this Special Inspections Document shall have the meanings ascribed to them in the VUSBC and BNBC.

Architect of Record — **(AR)** The ***Registered Design Professional*** retained by the ***Owner*** to design or specify architectural construction in accordance with the VUSBC and the Code of the County of Fairfax and whose signature and seal appear on the *County-approved architectural construction documents*.

Certification — 1. A statement by a ***Registered Design Professional*** which shall indicate that the item(s) under consideration, in his/her opinion and to the best of his/her knowledge, complies with *County-approved documents*. A certification shall carry the original signature and seal of the ***Registered Design Professional*** making the statement;
2. A statement by a ***Registered Design Professional*** which shall indicate that the item(s) under consideration, in his/her opinion and to the best of his/her knowledge, complies with requirements of the VUSBC. A certification shall carry the original signature and seal of the ***Registered Design Professional*** making the statement.

Completion Letter	1. A *certification* by the ***Special Inspections Engineer of Record*** **(SIER)** which shall indicate that the specific construction subject to special inspections, as required by the VUSBC, has been inspected in accordance with "Special Inspections: Implementation in Fairfax County/1996 Edition" and is completed and, in the **SIER**'s professional opinion and to the best of the **SIER**'s knowledge, complies with *County-approved documents* and project specifications. A completion letter shall carry the original signature and seal of the **SIER** making the statement; 2. A *certification* by the ***Geotechnical Engineer of Record*** **(GER)** which shall indicate that the specific construction subject to special inspections, as required by the VUSBC, has been inspected in accordance with "Special Inspections: Implementation in Fairfax County/1996 Edition" and is completed and, in the **GER**'s professional opinion and to the best of the **GER**'s knowledge, complies with *County-approved documents* and project specifications. A completion letter shall carry the original signature and seal of the **GER** making the statement.
Construction Documents	Documents prepared for the purpose of obtaining a building permit, as defined by BNBC.
County-Approved Documents	1. *Construction documents* as approved by the Building Plan Review Branch including all approved revisions; 2. *Fabrication and erection documents* as approved by the **FCCSS** including all approved revisions.
Critical Structure	A building/structure to be constructed or altered under the Fairfax County Special Inspections Program.
Fabrication and Erection Documents	All of the written, graphic and pictorial documents prepared or assembled after issuance of a building permit and in addition to the *County-approved construction documents*, describing the design, location and physical characteristics of the building components or materials necessary for fabrication, assembly or erection of the elements of the project.

Final Report of Special Inspections	A *certification* by the ***Special Inspections Engineer of Record*** **(SIER)** which shall indicate that all construction subject to special inspections, as required by the VUSBC, has been inspected in accordance with "Special Inspections: Implementation in Fairfax County/1996 Edition" and is completed and, in the **SIER**'s professional opinion and to the best of the **SIER**'s knowledge, a construction project complies with *County-approved documents* and project specifications. The Final Report of Special Inspections shall carry the original signature and seal of the **SIER** making the statement.
Geotechnical Engineer of Record	**(GER)** The ***Registered Design Professional*** retained by the ***Owner*** to design or specify earthwork and foundations in accordance with the VUSBC, the Code of the County of Fairfax and the Fairfax County Public Facilities Manual and whose seal and signature appear on the County-approved geotechnical report.
Inspection	The periodic observation of work and the performance of tests for certain building or structure components to establish conformance with *County-approved documents* as required by the VUSBC and this Special Inspections Document.
Inspection and Testing Agency	Agency or agencies retained by the ***Owner*** and approved by **FCCSS** to perform special inspections and materials testing required by the VUSBC, BNBC Section 1705.0 and this Special Inspections Document. The Inspection and Testing Agency shall be independent of the contractors performing the work subject to special inspections.
Non-Residential Use Permit	(Non-RUP) A certificate of occupancy issued by the Fairfax County Zoning Administration Division of the Office of Comprehensive Planning pursuant to the Fairfax County Zoning Ordinance (Chapter 112 of the Code of the County of Fairfax). A Non-Residential Use Permit issued for a building shell indicates that construction of a new building has been completed in compliance with all Fairfax County requirements. A Non-Residential Use Permit for a specific tenant indicates that construction of this tenant's space has been completed in compliance with all Fairfax County requirements, and can be occupied.
Non-Structural Elements	Elements of a building that are not *primary* or *secondary structural elements*. Examples include exterior curtain walls and cladding, nonloadbearing partitions, stair railings, etc.

Owner	Owner or owners of the freehold of the premises or lesser estate therein, a mortgagee or vendee in possession, assignee of rents, receiver, executor, trustee, or lessee in control of a building/structure to be constructed/altered, or the owner's duly authorized representative.
Pre-Engineered Structural Elements	Structural elements specified by the ***Structural Engineer of Record*** but which may be designed by a specialty ***Registered Design Professional***. Examples may be items such as open web steel joists and joist girders; wood trusses; combination wood, metal and plywood joists; precast concrete elements; prefabricated wood or metal buildings; tilt-up concrete panel reinforcement and lifting hardware.
Primary Structural System	The combination of elements which serve to support the weight of the building's structural shell, the applicable live load based upon use and occupancy, and environmental loads such as wind, thermal loads and seismic loads. Items such as curtain wall members, nonloadbearing walls, or exterior facades are not part of the primary structural system.
Registered Design Professional	A professional architect or professional engineer licensed in the Commonwealth of Virginia (see Code of Virginia, § 54-1).
Secondary Structural Elements	Building elements that are structurally significant for the function they serve but are not necessary to ensure stability of the *primary* structure. Examples include: support beams above the *primary* roof structure which carry a chiller; elevator support rails and beams; retaining walls independent of the *primary* building; flagpole or light pole foundations; falsework required for the erection of the *primary structural system*; steel stairs or railings; etc., not fully specified on the *County-approved construction documents*.
Shall	The term, where used in this Special Inspections Document, indicates mandatory requirements.
Special Inspections Engineer of Record	**(SIER)** The ***Registered Design Professional*** who is directly responsible for special inspections, materials testing and related services as described in the *County-approved Statement of Special Inspections* and this Special Inspections Document.

Statement of Special Inspections — (SSI) The Statement of Special Inspections is a statement prepared by the ***Owner*** and the appropriate ***Registered Design Professionals*** of record (**AR**, **GER**, **SER**) and submitted by the permit applicant. The SSI identifies the scope of the special inspections services applicable to a construction project and the ***Registered Design Professionals*** and *Inspection and Testing Agencies* who will provide those services. The SSI is required as a condition for permit issuance in accordance with BNBC as amended by the VUSBC.

Structural Engineer of Record — **(SER)** The ***Registered Design Professional*** retained by the ***Owner*** to design or specify structural documents in accordance with the VUSBC and the Code of the County of Fairfax and whose signature and seal appear on the *County-approved structural construction documents*.

SIFC-202.0 ABBREVIATIONS

A2LA	American Association for Laboratory Accreditation
ACI	American Concrete Institute
AISC	American Institute of Steel Construction, Inc.
AISC ASD	AISC Specification for Structural Steel Buildings - Allowable Stress Design and Plastic Design
AISC LRFD	AISC Load and Resistance Factor Design Specification for Structural Steel Buildings
AISI	American Iron and Steel Institute
AR	***Architect of Record***
ASCE	American Society of Civil Engineers
ASNT	American Society for Non-Destructive Testing
ASTM	American Society for Testing and Materials
AWS	American Welding Society
BIA	Brick Institute of America
BOCA	Building Officials and Code Administrators International, Inc.
BNBC	The BOCA National Building Code/1996 Edition
CFR	Code of Federal Regulations
CCRL	Cement and Concrete Reference Laboratory
DEM	Department of Environmental Management, Fairfax County, Virginia
EIFS	Exterior Insulation and Finish Systems
FCCSS	**Fairfax County Critical Structures Section**
GC	**General Contractor**
GER	***Geotechnical Engineer of Record***
NVLAP	National Voluntary Laboratory Accreditation Program
NCMA	National Concrete Masonry Association
NEC	National Electrical Code
NICET	National Institute for Certification in Engineering Technologies

NIST	National Institute of Standards and Technology (formerly National Bureau of Standards)
Non-RUP	*Non-Residential Use Permit*
PCA	Portland Cement Association
PCI	Prestressed Concrete Institute
RCSC	Research Council on Structural Connections of the Engineering Foundation
SDI	Steel Deck Institute
SJI	Steel Joist Institute
SER	***Structural Engineer of Record***
SIER	***Special Inspections Engineer of Record***
SIFC	**"Special Inspections: Implementation in Fairfax County/1996 Edition"**
SSI	*Statement of Special Inspections*
TMS	The Masonry Society
VDOT	Virginia Department of Transportation
VOSHA	Virginia Occupational Safety and Health Administration
VUSBC	Virginia Uniform Statewide Building Code/1996 Edition, 13 VAC 5-61-10 et seq.
WACEL	(formerly Washington Area Council of Engineering Laboratories)

CHAPTER 3
SPECIAL INSPECTIONS CLASSIFICATIONS

SIFC-301.0 GENERAL

301.1 Building Elements: The requirements of this Special Inspections Document shall apply to building elements and/or foundation elements and/or element fabrication procedures that are subject to special inspections as required by BNBC Section 1705.0 and as amended by the VUSBC. Such elements or procedures, including elements of "unique design", are identified in Section SIFC-302.0 of this chapter.

301.2 Existing Buildings and Structures: Modifications to the *primary structural system* of existing buildings or structures, whose elements fall within the special inspections classification criteria, shall be subject to special inspections.

SIFC-302.0 SPECIAL INSPECTIONS REQUIRED

The following shall be subject to special inspections:

302.1 Structural Steel Construction (See Chapter 6):

a. Steel Fabricators: Special inspections of the fabrication process are required, for all steel fabricated assemblies that are themselves subject to special inspections, except as exempted in BNBC Section 1705.3.1.

b. Buildings of Any Height: The following steel elements of buildings, regardless of height:

- Rigid or semi-rigid connections, field welded or bolted.
- Bolted connections with a requirement for a minimum pretension beyond snug tight to be achieved.
- Steel beam or column elements with clear spans greater than 50 feet in length or height.
- Steel trusses, open-webbed joist girders or steel joists (other than those manufactured to SJI specifications).
- Plate girders of any span.
- Space frames with clear spans greater than 35 feet.
- Steel floor and/or roof decks designed to act as diaphragms to distribute lateral forces to wind resisting frames.
- Cable supported structures, except tents.
- Bolted or welded lateral bracing elements.
- Spray-on fireproofing, whether or not the steel elements are subject to special inspection.

c. **Buildings More Than Three Stories in Height:** In addition to the steel elements of Section SIFC-302.1.b, the following steel elements of buildings greater than three (3) stories in height:

- Open-webbed joist girders and steel joists (including those manufactured to SJI specifications).
- Steel stairs and ladders connecting more than three stories.
- Steel floor and/or roof decks.
- Field-welded shear studs.

d. **Seismic-resisting Systems:** Welding of steel elements of the structural seismic-resisting system of all buildings, regardless of height, assigned to Seismic Performance Category C, as required by BNBC Section 1705.3.3.2.1.

302.2 Cast-in-Place Concrete Construction (See Chapter 7):

a. **Components:** All structural elements of cast-in-place concrete, including reinforced, prestressed, or post-tensioned concrete elements, and concrete topping on stay-in-place steel decking, both composite and non-composite, except as follows:

- Shallow concrete footings of buildings three stories or less in height which are fully supported on rock or soils with an allowable bearing capacity of greater than 3,000 pounds per square foot.
- Nonstructural concrete slabs supported directly on the ground, including prestressed slabs on grade when the effective prestress in the concrete is less than 150 psi.
- Plain concrete foundation walls County-approved and constructed in accordance with BNBC Table 1812.3.2.
- Concrete patios, driveways and sidewalks, on grade.

b. **Seismic-resisting Systems:** Welding of reinforcing and grouting of bonded prestressing tendons of the cast-in-place concrete elements of the structural seismic-resisting system of all buildings, regardless of height, assigned to Seismic Performance Category C, as required by BNBC Sections 1705.4.2 and 1705.4.5.1.

302.3 Precast Concrete Construction (See Chapter 8):

a. **Precast Concrete Fabricators:** Special inspections of the fabrication process are required, for all precast concrete elements that are themselves subject to special inspections.

b. **Off-site Precast Components:** All architectural and/or structural precast concrete building elements manufactured off-site, usually at a precast concrete plant, with the exception of miscellaneous cast stone items such as sills, coping, pavers, etc., or as otherwise approved.

c. **Site-cast Precast Components:** All site-cast, precast concrete elements, including

tilt-up concrete wall panels.

d. **Seismic-resisting Systems:** Welding of connections of the precast concrete elements of the structural seismic-resisting system of all buildings, regardless of height, assigned to Seismic Performance Category C, as required by BNBC Section 1705.4.

302.4 Masonry Construction (See Chapter 10):

Masonry elements designed in accordance with ACI 530/ASCE 5/TMS 402, except members or buildings empirically designed in accordance with ACI 530/ASCE 5/TMS 402 Chapter 9.

302.5 Wood Construction (See Chapter 9):

a. **Wood Fabricators:** Reserved.

b. **Seismic-resisting Systems:** Nailing, bolting, structural gluing or other fastening of the wood elements of the structural seismic-resisting system of all buildings, regardless of height, assigned to Seismic Performance Category C, as required by BNBC Section 1705.6.

302.6 Soils and Foundations Construction (See Chapter 11):

a. **Shallow Footings and Foundations:** Soils and building foundation elements when either of the following conditions exist:

- Problem Soils: The building footprint is located in a problem soils area, as defined by the Fairfax County Public Facilities Manual and/or as indicated by the *County-approved geotechnical report.*
- Structural Fill: The bearing material under the building footprint consists of compacted structural fill.

b. **Deep Foundations:** Building foundation elements for the following systems:

- Pile foundations of all buildings, regardless of height.
- Pier foundations of all buildings, regardless of height, assigned to Seismic Performance Category C. The *Statement of Special Inspections* shall specifically include the special inspections required for the seismic-resisting elements.

c. **Bearing Material:** Bearing material when the building's foundations are designed for a bearing capacity of greater than 3,000 pounds per square foot.

302.7 Earth Retention Systems Construction (See Chapter 12):

All earth retention systems retaining 10 feet or more of unbalanced fill, and/or trenching operations deeper than 8 feet, whether permanent or temporary, including, but not limited to:

- Building foundation walls.
- Retaining walls.
- Soldier piles and lagging.
- Soil nailing systems.
- Sheet piling.
- Braced or shored walls.
- Tied-back walls.
- Slurry walls.

302.8 Exterior Insulation and Finish Systems (EIFS) Construction (See Chapter 15):

a. EIFS Fabricators: Special inspections of the fabrication process are required, for all EIFS prefabricated components that are themselves subject to special inspections.

b. Prefabricated Components: All EIFS building elements, such as panels, manufactured off-site, usually at an EIFS plant, and shipped to the job site for erection, with the exception of miscellaneous architectural trim items, or as otherwise approved.

c. EIFS Construction: All EIFS applications greater than 10,000 square feet in gross wall contact area, either fabricated or erected on-site, including prefabricated components manufactured off-site, except buildings of Use Group R-3 or accessory structures of Use Group U. (Note: any EIFS elements not subject to special inspections pursuant to this Special Inspections Document are instead subject to alternative product approval and certification requirements by the Department of Environmental Management (DEM).)

SIFC-303.0 ELECTIVE SPECIAL INSPECTIONS

Owners of buildings may elect to follow the Special Inspections Program on projects that otherwise do not fall under the above criteria. In such cases, the ***Owner*** shall notify the Building Plan Review Branch, DEM of this intent prior to issuance of the building permit. ***Owners*** electing to follow the Special Inspections Program shall follow all applicable requirements of this Special Inspections Document.

SIFC-304.0 STATEMENT OF SPECIAL INSPECTIONS

304.1 Content: The *Statement of Special Inspections* (SSI) shall identify the scope of the special inspections services applicable to the project and shall include the names of the ***Registered Design Professionals*** and *Inspection and Testing Agencies* who will provide those services. The ***Special Inspections Engineer of Record*** and the *Inspection and Testing Agencies* are subject to the approval of the Building Official.

304.2 Submittal, Review and Approval: The SSI shall be incorporated into the *construction documents* and shall be submitted by the permit applicant to the Building Plan Review Branch,

DEM. The Building Plan Review Branch shall review and approve the SSI prior to scheduling the **FCCSS** preconstruction meeting (see Chapter 4). The **FCCSS** shall also review and approve the SSI during the **FCCSS** preconstruction meeting. Both County approvals are required prior to issuance of a building permit.

304.3 SSI Form: A blank SSI Form is provided on the following four pages. Page one of the form, to be prepared by the ***Owner***, identifies the project and the ***Registered Design Professionals*** of record for the project. Pages two and three of the form, to be prepared by the appropriate ***Registered Design Professionals*** of record (**AR**, **GER**, **SER**), specify the scope of special inspections services; blank spaces are also provided for entry of completion dates as special inspection services are performed. Page four of the form is a *Final Report of Special Inspections*, to be prepared by the ***Special Inspections Engineer of Record***, for use after all special inspections services are completed.

FAIRFAX COUNTY, VIRGINIA
SPECIAL INSPECTIONS PROGRAM
Statement of Special Inspections

Q-Number: _____ **Permit Number**: _____

PROJECT: _____ **VUSBC Edition**: _____

Address: _____ **Use Group**: _____

_____ **Construction Type**: _____

Building Owner: _____
Name *Company*

Owner's Address: _____

_____

Architect of Record: _____
Name & License *Company*

Structural Engineer of Record: _____
Name & License *Company*

Geotechnical Engineer of Record: _____
Name & License *Company*

Special Inspections Engineer of Record: _____
Name & License *Company*

General Contractor: _____
Name & License *Company*

This Statement of Special Inspections is submitted as a condition for permit issuance in accordance with the Virginia Uniform Statewide Building Code. It includes a schedule of special inspections applicable to this project.

The Special Inspections Engineer of Record shall keep records of specified special inspections and testing and shall furnish copies of inspection and testing reports to the Fairfax County Critical Structures Section and to the appropriate registered design professionals of record. Discrepancies from the approved plans and specifications and code violations observed during the conduct of special inspections services shall be brought to the immediate attention of the contractor for correction, to the attention of the Fairfax County Critical Structures Section, and to the appropriate registered design professionals of record. A Final Report of Special Inspections documenting completion of specified special inspections and correction of any discrepancies and observed code violations noted in the inspection and testing reports shall be submitted to and approved by the Fairfax County Critical Structures Section prior to the final building inspection approval by County staff.

Prepared by:

_____ _____
(Type or print) Name *Signature & Date*

Reviewed by Registered Design Professional of Record: _____
Signature & Date

Building Owner's Authorization: _____
Signature & Date

Building Official's Acceptance:

Building Plan Review Branch _____
Signature & Date

Critical Structures Section _____
Signature & Date

SCHEDULE OF FAIRFAX COUNTY SPECIAL INSPECTIONS

Date:

PROJECT:

Prepared by:

ACTIVITY	Y/N	SCOPE OF SERVICE	AGENT *	DATE COMPLETED
STEEL CONSTRUCTION (1705.3)				
Inspection of Steel Fabricators (1705.3.1)				
Material Receiving (1705.3.2)				
Erection (1705.3.3) a. Installation of HS Bolts (1705.3.3.1) b. Welding (1705.3.3.2) c. Details (1705.3.3.3) d. Spray-on fireproofing (1705.12)				
CONCRETE CONSTRUCTION (1705.4)				
Materials (1705.4.1)				
Installation of Reinforcing and Prestressing Steel (1705.4.2)				
Formwork (1705.4.3)				
Concreting Operations (1705.4.4)				
Inspection During Prestressing (1705.4.5)				

SCHEDULE OF FAIRFAX COUNTY SPECIAL INSPECTIONS

Date:

PROJECT:

Prepared by:

ACTIVITY	Y/N	SCOPE OF SERVICE	AGENT *	DATE COMPLETED
Manufacture of Precast Concrete (1705.4.6)				
Erection of Precast Concrete (1705.4.7)				
MASONRY CONSTRUCTION (1705.5)				
WOOD CONSTRUCTION (1705.6)				
PREPARED FILL (1705.7)				
Site Preparation (1705.7.1)				
During Fill Placement (1705.7.2)				
Evaluation of In-Place Density (1705.7.3)				
PIER FOUNDATIONS (1705.9)				
PILE FOUNDATIONS (1705.8)				
EXTERIOR INSULATION AND FINISH SYSTEMS (1705.13)				
OTHER				

* INSPECTION AGENTS *Name, Company, Address*

1. Special Inspections Engineer of Record: _____
2. Inspection and Testing Agency: _____
3. Inspection and Testing Agency: _____

FAIRFAX COUNTY, VIRGINIA
SPECIAL INSPECTIONS PROGRAM
Final Report of Special Inspections

Q-Number: _____ **Permit Number**: _____

PROJECT: _____

Address: _____

_____

Special Inspections Engineer of Record: _____

Inspection reports numbered _____ to _____, and test reports numbered _____ to _____, all submitted prior to this Final Report, form a basis for, and are to be considered an integral part of this final report.

The special inspections specified for this project and itemized in the County-approved Statement of Special Inspections have been completed pursuant to the Fairfax County Special Inspection Program requirements. The building elements subject to special inspections have been found to be in compliance with County-approved documents and in conformance with project specifications. Violations of the Virginia Uniform Statewide Building Code observed in the conduct of special inspections services were brought to the attention of the appropriate registered design professional of record, the County , and the owner for resolution and the resolution was approved by the County.

Submitted by Special Inspections Engineer of Record:

_____
Signature & Date

_____
(Type or print) Name

Special Inspections
Engineer of Record
P.E. Seal

Reviewed by Registered Design Professional of Record:

_____
Signature & Date

_____
(Type or print) Name

Accepted by Building Official:

_____
Signature & Date

Critical Structures Section

_____
(Type or print) Name

CHAPTER 4
FCCSS PRECONSTRUCTION MEETING

SIFC-401.0 PURPOSE

The purpose of the **FCCSS** preconstruction meeting is to review the special inspections requirements of the construction project. The following shall be discussed:

a. **Construction Project Requirements:** Construction project requirements of the Fairfax County Special Inspections Program, including construction methods, site safety and fire hazard prevention during the construction process.

b. **Statement of Special Inspections (SSI):** The scope of special inspections for the project, including required and elective special inspections (see Chapter 3).

c. **Responsibilities:** The roles and responsibilities of each party.

d. **Communication:** Communication channels between the County's and ***Owner***'s representatives.

e. **Phased Construction:** Requirements for phasing or separations of permits, certificates of completion and occupancy requirements.

SIFC-402.0 WHEN REQUIRED

A preconstruction meeting with **FCCSS** is required for every project that will be constructed under the Special Inspections Program. The **FCCSS** preconstruction meeting shall take place after structural review and approval of *construction documents* is completed by the Building Plan Review Branch and prior to the issuance of a building permit.

SIFC-403.0 PARTICIPANTS

The following members of the construction team shall participate in FCCSS preconstruction meetings, as required:

- ***Owner***
- ***Architect of Record*** (building elements and/or soils/foundation elements)
- ***Structural Engineer of Record*** (building elements)
- ***Geotechnical Engineer of Record*** (soils/foundation elements)
- **General Contractor**
- ***Special Inspections Engineer of Record***
- **Fairfax County Critical Structures Staff**
- **Other Parties** deemed appropriate by the ***Owner*** or **FCCSS** (*Inspection and Testing*

Agencies, Subcontractors, etc.)

SIFC-404.0 PROCEDURAL REQUIREMENTS

404.1 Scheduling of Meeting: The ***Owner*** or the ***Owner***'s representative shall identify the necessary participants and schedule the meeting by calling the **FCCSS** at (703) 324-1060. Required participants must be represented during the preconstruction meeting. At the preconstruction meeting, the ***Owner*** or the ***Owner***'s representative shall complete a contact sheet with names, addresses, and telephone numbers of those in attendance. The ***Owner*** shall bring to the preconstruction meeting a copy of the *County-approved project construction documents* including the Building Plan Review Branch-approved *Statement of Special Inspections*.

404.2 Location of Meeting: Fairfax County Critical Structures Section office, Herrity Building, 3rd Floor, 12055 Government Center Parkway, Fairfax, Virginia 22035-5504.

404.3 Use of Special Inspections Document: The Special Inspections Document will be used in the meeting to review, discuss, clarify and approve elements of the Special Inspections Program that apply to the project. It is recommended that, prior to the meeting, all parties review this Special Inspections Document as it pertains to the specific project.

404.4 FCCSS Approval of Statement of Special Inspections: The **FCCSS** shall review and approve the *Statement of Special Inspections* (see Section SIFC-304.0) during the meeting. After **FCCSS** review and approval of the SSI, a building permit can be issued.

CHAPTER 5
SPECIAL INSPECTIONS AND TESTING SERVICES

SIFC-501.0 PROCEDURAL REQUIREMENTS

501.1 General: The ***Owner*** shall be responsible for retaining an independent ***Special Inspections Engineer of Record*** **(SIER)** to provide special inspections and testing services, including *Inspection and Testing Agency* supervision. Under no circumstances shall the **General Contractor (GC)** or any of the subcontractors be permitted to provide special inspections and testing services. The **GC** shall coordinate the scheduling of inspections. The *Inspection and Testing Agency* personnel required on-site shall be in numbers sufficient to perform all required tasks.

501.2 Review and Approval: As part of the *Statement of Special Inspections* submitted for County approval and permit issuance, the ***Owner*** shall furnish the County with the names of the **SIER** and the *Inspection and Testing Agency* retained to provide special inspections and testing services. The SSI is reviewed and approved by the Building Plan Review Branch and **FCCSS** (see Sections SIFC-304.2 and 404.4).

After County review and approval of the SSI, the **SIER** shall submit to the **FCCSS** one copy of résumés of all *Inspection and Testing Agency* personnel assigned to the project, inspectors' certifications and accreditation certificates for laboratory facilities. The personnel and laboratories are subject to **FCCSS** approval.

501.3 Changes in Construction Team: In the event that the **AR**, the **SER**, the **GER**, the **GC**, the **SIER**, or the organizations or individuals contracted for special inspections or testing services are changed during the course of the work, the ***Owner*** shall notify the **FCCSS** immediately. The ***Owner*** shall provide a written explanation for such change; shall identify and obtain approval for the replacement organization or a replacement individual; and shall schedule a new meeting with **FCCSS** and the replacement organization or a replacement individual. The ***Owner*** shall ensure that there is a timely transfer of information and responsibility to the replacement party.

SIFC-502.0 ROLES AND RESPONSIBILITIES

502.1 Special Inspections: The **SIER** shall provide and *certify* special inspections of building components and testing of construction materials where such inspections and testing are required by the VUSBC, the *Statement of Special Inspections* and this Special Inspections Document.

502.2 Approved Documents: Prior to conducting special inspections and materials testing, the **SIER** shall be responsible for verification of the following:

a. Building Permit: A building permit for the particular construction has been issued

and a copy of the building permit is available at the job site.

b. **Approved Construction Documents:** A set of original *County-approved construction documents* is available at the job site.

c. **Approved Fabrication and Erection Documents:** *County-approved fabrication and erection documents,* which also bear the ***Structural Engineer of Record*** **(SER)** review/approval stamp, are available at the job site. Other approved *fabrication and erection documents* which do not require County approval but which bear the **SER** review/approval stamp are available at the job site and a record copy of such documents received by **FCCSS** where required by this Special Inspections Document.

d. **Document Revisions:** All revisions to *County-approved construction documents* or other *fabrication and erection documents* have been approved, signed and sealed by the ***Architect of Record*** **(AR)**, **SER** and/or ***Geotechnical Engineer of Record*** **(GER)**, as appropriate. If such revisions do not bear the County stamp of approval, the **SIER** shall confirm with the **FCCSS** that such revisions were authorized by County staff. It shall be the **AR**'s, **SER**'s, and/or **GER**'s responsibility to submit written revisions to **FCCSS** confirming orally approved field changes within seven working days of approval.

502.3 **Deviations:** The **SIER** and the **SIER**'s representatives/field technicians shall not suggest, direct or authorize the fabricator, erector or contractor to deviate from the contract documents, *County-approved construction documents*, or *County-approved fabrication and erection documents*, without the express written approval of the **AR**, **SER**, **GER**, or **FCCSS**, as appropriate.

502.4 **Special Inspection Reports:** The **SIER** shall report the results of testing and inspections, both approvals and rejections, to the **FCCSS** according to the following procedures:

a. **Seal and Signature:** Each report shall bear a signature and seal of the **SIER** and shall include the correct building permit number and project's address. Reports without project identification shall be rejected.

b. **Submissions:** Both approval and rejection reports shall be submitted to all parties, i.e., **FCCSS**, the ***Owner***, the **GC** and the **AR**, **SER**, and/or **GER**. Deficiencies shall be reported to the **GC** superintendent for correction. With the exception of situations where a code violation or safety hazard is discovered (see Sections SIFC-502.5 and 502.6), all inspection and test reports shall be submitted to **FCCSS** within seven working days of the inspection or test performed.

c. **Compliance:** Unless deficiencies are discovered or code violations are revealed during the conduct of special inspection and testing services, these reports shall indicate that the specified work has been inspected and found to be in compliance with *County-approved documents*.

d. **Deficiencies:** Deficiency reports shall contain the details describing the nature and specific location of the deficiency and include a description of the action recommended by the **AR**, **SER** and/or **GER**, as appropriate, to correct it.

e. **Correction of Deficiencies:** At the completion of a project, all recorded problems or deficiencies shall be documented as having been corrected and approved by the **AR**, **SER** and/or **GER**, as appropriate.

f. **Completion Letters:** Upon completion of special inspections and testing for a particular construction, such as "structural steel", the **SIER** shall, after review and approval by the appropriate ***Registered Design Professionals***, submit a *Completion Letter* to **FCCSS**.

g. **Final Report of Special Inspections:** Upon completion of all special inspections and testing for the scope of special inspections applicable to the construction project, the **SIER** shall, after review and approval by the appropriate ***Registered Design Professionals***, submit a *Final Report of Special Inspections* to **FCCSS**.

502.5 Code Violations: When the **SIER** and/or **SIER** personnel discover a condition during the conduct of special inspection and/or testing services that constitutes a violation of the VUSBC or the Code of the County of Fairfax, the **SIER** shall immediately notify the appropriate ***Registered Design Professionals*** of record and **FCCSS** for resolution, followed with a written report submitted to **FCCSS** within seven working days.

502.6 Job Site Safety Violations: When the **SIER** and/or **SIER** personnel discover a condition that poses an immediate or serious safety hazard to job site workers and/or the general public, the **SIER** shall immediately notify the **GC** superintendent and **FCCSS** for resolution.

SIFC-503.0 PERSONNEL QUALIFICATIONS

503.1 Direct Supervision: The *Inspection and Testing Agency* personnel assigned to conduct special inspections in Fairfax County shall work under the supervision of a ***Registered Design Professional***.

503.2 Certification: Except for individuals who are ***Registered Design Professionals***, field personnel shall be certified by examination through ACI, AWS, ASNT, NICET, WACEL, or other organizations whose programs are recognized by the County. The personnel of the *Inspection and Testing Agency* shall perform only those services in which they have demonstrated competency through such a recognized certification or registration program.

503.3 Unusual Functions: In the event there is no certification program applicable to a specific function, the **SIER** shall submit a signed statement attesting to the competency of personnel and identifying the basis upon which such statement is made.

SIFC-504.0 LABORATORY ACCEPTANCE STANDARDS

Laboratory facilities must be accredited by an agency such as A2LA, NIST, NVLAP, WACEL or other organizations whose programs are recognized by the County. All laboratory facilities must meet the requirements of ASTM E329, ASTM D3740, and ASTM C1077 as applicable. On-site laboratory facilities shall be *certified* by the **SIER**.

CHAPTER 6
STRUCTURAL STEEL

SIFC-601.0 GENERAL

601.1 Scope: The requirements of this chapter and BNBC Sections 1705.3 and 1705.12 shall apply when construction includes structural hot-rolled steel building elements as listed in Section SIFC-302.1 of this Special Inspections Document.

601.2 Steel Fabrication: Structural steel fabricators shall be subject to special inspections as required by Section SIFC-603.0.

601.3 Steel Erection: Structural steel elements shall be subject to special inspections as required by Section SIFC-604.0. Construction shall conform to the AISC Code of Standard Practice. Adequate guying and/or bracing shall be used during the erection process to maintain the stability of the structure. Structural steel, joists, etc. shall not be erected on concrete or masonry footings, piers, walls, etc. less than 7 days old unless the concrete or masonry strength criteria that have been established by the ***Structural Engineer of Record*** **(SER)** for carrying such loads are satisfied.

SIFC-602.0 FABRICATION AND ERECTION DOCUMENTS

602.1 Review and Approval: The structural steel *fabrication and erection documents* shall be submitted for review and approval to the **SER** and to **FCCSS** prior to fabrication and erection of steel elements. The **General Contractor (GC)** shall submit two sets of **SER**-approved *fabrication and erection documents* to **FCCSS** for approval. After County review and approval, **FCCSS** will return one set of *County-approved fabrication and erection documents* for use on the job site. *County-approved documents* shall be used by the ***Special Inspections Engineer of Record*** **(SIER)** to conduct special inspections during construction.

602.2 Preparation of Fabrication and Erection Documents: The structural steel *fabrication and erection documents* shall include designs and details for welded and bolted connections. Details for welded connections shall clearly indicate the seismic-resisting elements of buildings of Seismic Category C. Details for bolted connections shall clearly indicate the type of connection used in the design (bearing or slip-critical), the amount of tensioning required (snug tight or fully tensioned) and the ASTM specifications for the bolts, nuts and washers.

602.3 SER Review and Approval: The structural steel *fabrication and erection documents* shall be reviewed and approved by the **SER** in accordance with the following requirements:

a. Review and Approval Stamp: Each individual *fabrication and erection document* shall bear the review and approval stamp of the **SER** or be otherwise individually identified as being reviewed and approved (see Section SIFC-1401.0). Submission packages of *fabrication and erection documents* may be accompanied by an index

sheet bearing the approval stamp and signature. If an index sheet is employed, it shall specifically list the drawings, and dates thereof, to which the approval stamp and signature apply. Subsequent submissions of revised drawings shall be reflected on the index sheet.

b. **Primary Structural System:** The **SER** shall review and approve the submitted documents for compliance with *County-approved construction documents*, including the review and approval of any connections developed by the steel fabricator. The **SER** shall indicate approval with a signed and sealed statement, attached to the documents, accepting responsibility for the design of connections which shall include language as given in either:

- "The structural steel fabrication and erection documents have been reviewed, including a verification of all the structural steel connections shown. Where marked "Approved" or "Approved as Noted", I accept full responsibility for the design of the connections to support the design loads required by the County-approved construction documents for the completed project."; or,

- "I have reviewed the structural steel fabrication and erection documents _____ as prepared by _____ for the above referenced project. My review and approval or approval as noted dated _____ included a verification of all the structural steel connections shown. I accept the responsibility for the design of the connections to support the design loads required by the County-approved construction documents for the completed project."

c. **Secondary Structural Systems:** *Secondary elements* are required to be reviewed and approved by the **SER** only for their effects on the *primary structural system*.

SIFC-603.0 INSPECTION OF STEEL FABRICATORS

603.1 Steel Fabricators: Where fabrication of structural members and assemblies is being performed on the premises of a fabricator's shop, the **SIER** shall provide special inspection of fabrication procedures as required by Section SIFC-603.2 and of the fabricated items as required by Sections SIFC-604.1 and 604.2.

Exception: Special inspection of the steel fabricator as required by Section SIFC-603.2 shall not be required where the fabricator does not perform any welding, thermal cutting or heating operation of any kind as part of the fabrication process. In such cases, the fabricator shall submit to the **SIER** a detailed procedure for material control which demonstrates the fabricator's ability to maintain suitable records and procedures such that, at any time during the fabrication process, the material specification, grade and mill test reports for the main stress-carrying elements and bolts can be determined.

603.2 Fabrication Procedures: The **SIER** shall verify that the fabricator maintains detailed

fabrication and quality control procedures which provide a basis for control of workmanship and the fabricator's ability to conform to approved drawings, project specifications, and referenced standards. The **SIER** shall review the procedures for completeness and adequacy relative to the Code requirements for the fabricator's scope of work. This shall include fabrication procedures and material traceability in accordance with AISC specifications and welder certification in accordance with AWS D1.1. The **SIER** shall verify that the fabricator has a detailed procedure for material control which demonstrates the fabricator's ability to maintain suitable records and procedures such that, at any time during the fabrication process, the material specification, grade and mill test reports for the main stress-carrying elements and bolts can be determined.

a. **Certification:** The fabricator may demonstrate to the **SIER** that the requirements of Section SIFC-603.2 have been met by furnishing evidence of compliance with the AISC Quality Certification Program or its equivalent, in the appropriate category.

b. **Procedures Implementation:** The **SIER** shall verify in writing to **FCCSS** that the fabricator is properly implementing the fabrication and quality control procedures outlined above. Verification may be on a job basis or by inspection within the previous twelve months.

SIFC-604.0 INSPECTION OF STEEL ELEMENTS

604.1 **Material Receiving:** The **SIER** shall inspect all structural elements, welding material, and high strength bolts for conformance with Table SIFC-601. High strength bolts and nuts shall be clearly marked with an identifiable manufacturer's mark on both the bolt head and nut. All shipments of high-strength bolts, nuts and washers, whether from manufacturer, distributor, or reseller, shall include manufacturer's current test reports for chemical composition (ASTM A751) and mechanical properties, including proof load testing (ASTM F606).

TABLE SIFC-601
SPECIAL INSPECTIONS FOR STEEL MATERIALS

Material	Inspection Required	Reference for Criteria
Structural Steel	1. Material identification markings. 2. Conformance to ASTM standards specified in the approved plans and specifications.	ASTM A6 or ASTM A588 Provide *certified* test reports in accordance with ASTM A6 or ASTM A588
Bolts, Nuts, Washers	1. Material identification markings. 2. Conformance to ASTM standards specified by the design engineer. Manufacturer's certificate of compliance is required. 3. Manufacturer's mark.	Applicable ASTM material specifications. AISC Specification for Structural Steel -- ASD : Sec. A3.4 LRFD : Sec. A3.3
Weld Filler Materials	1. Conformance to AWS Specification as specified in the approved plans and specifications. Manufacturer's certificate of compliance is required.	AISC Specification for Structural Steel -- ASD : Sec. A3.6 LRFD : Sec. A3.5

604.2 Erection: The **SIER** shall perform special inspections of bolts, welding, connections, details and spray-on fireproofing as specified below. Any discrepancies between the *County-approved construction documents* and *County-approved structural steel fabrication and erection documents* shall be brought to the immediate attention of the **SER** and **FCCSS**. All steel elements shall be inspected before they are covered by fireproofing or are otherwise concealed.

a. High Strength Bolts: Installation shall conform to the *County-approved construction documents, County-approved structural steel fabrication and erection documents,* and the RCSC/AISC Specification for Structural Joints Using A325 or A490 Bolts. In addition, if the "turn-of-the-nut" method is used, the installer shall ensure that the bolt and nut are marked by crayon or other means to afford a visual indication of rotation. Inspection shall be as specified in Section 9 of the RCSC/AISC Specification for Structural Joints Using A325 or A490 Bolts.

In the event any bolt, nut or washer is broken during normal installation (except bolts purposely over-torqued in order to draw the parts together), the **SIER** shall bring such failures to the immediate attention of the **SER** and **FCCSS**. The **SIER** shall supervise the on job-site proof load testing of any suspect bolt(s) per ASTM and AISC standards. Should the bolts fail load testing, they shall be rejected and the **SER** shall make recommendations in writing for remedial actions. All test results and

recommendations shall be reported to **FCCSS**.

b. **Welding:** All welders and weld special inspectors shall be certified in accordance with AWS D1.1. Weld inspection shall be in conformance with Section 6 of AWS D1.1 and BNBC Section 1705.3.3.2, including special inspections of the structural seismic-resisting system required by BNBC Sections 1705.3.3.2.1 - 1705.3.3.2.3 of buildings assigned to Seismic Performance Category C.

c. **Rigid or Semi-Rigid Connections:** When field welding of rigid or semi-rigid connections is required, or when bolted connections are required to meet a minimum pretension beyond snug tight, the **SIER** shall conduct special inspections of the connections.

d. **Details:** The **SIER** shall perform inspections of the steel frame to verify compliance with the details shown on the *County-approved construction documents* and the *County-approved fabrication and erection documents*, such as bracing, stiffening, member locations, and proper application of joint details at each connection.

e. **Spray-on Fireproofing:** The **SIER** shall inspect and test spray-on fireproofing in accordance with BNBC Section 1705.12, including preparation of structural member surfaces, verification of substrate ambient temperatures and ventilation requirements, and testing samples for thickness, adhesion and density. Frequency of sampling shall be as specified in BNBC Sections 1705.12.3.1 and 1705.12.3.2, not less than once for every 1,000 square feet of sprayed surface area of floors, walls and roofs and not less than 25 percent of the structural frame members of each floor. Test methods shall be as specified by ASTM E605 and E736 for thickness, adhesion and density. Inspection reports shall include the fireproofing design number(s) as shown on the *County-approved construction documents*.

SIFC-605.0 COMPLETION OF STRUCTURAL STEEL CONSTRUCTION

Upon completion of structural steel construction, including connections and spray-on fireproofing, the **SIER** shall, after review and approval by the **SER**, submit a *Completion Letter* to **FCCSS** and shall indicate the date of completion on the *Final Report of Special Inspections*.

CHAPTER 7
CAST-IN-PLACE CONCRETE

SIFC-701.0 GENERAL

701.1 Scope: The requirements of this chapter and BNBC Section 1705.4 shall apply when construction includes cast-in-place concrete as listed in Section SIFC-302.2 of this Special Inspections Document.

701.2 Construction Loads: The **General Contractor (GC)** shall coordinate construction operations so that at all times the dead loads, live loads, and construction loads delivered to the building shall be within the capacity of the building to carry such loads. In addition, no structural loads shall be imposed on any vertical load carrying member which is less than seven days old unless the concrete strength criteria established by the ***Structural Engineer of Record*** **(SER)** for carrying such loads is satisfied.

701.3 Posting of Concrete Pour Schedule: As construction proceeds, the **GC** shall post the updated concrete pour schedule on the door of the **GC**'s field office. This schedule will be used, in case of fire, by the Fairfax County Fire and Rescue Department and shall indicate building floor level, pour number, and date of pour.

SIFC-702.0 FABRICATION AND ERECTION DOCUMENTS

702.1 Review and Approval: The cast-in-place concrete *fabrication and erection documents*, including concrete mix designs, shall be submitted for review and approval to the **SER** and to **FCCSS** prior to concrete construction and/or formwork erection, as appropriate. The **GC** shall submit two sets of SER-approved *fabrication and erection documents* to **FCCSS** for approval. After County review and approval, **FCCSS** will return one set of *County-approved fabrication and erection documents* for use on the job site. *County-approved documents* shall be used by the ***Special Inspections Engineer of Record*** **(SIER)** to conduct special inspections during construction.

Exceptions: FCCSS approval is not required for non-prestressed mild steel reinforcement. One set of **SER**-approved *fabrication and erection documents* shall be submitted to **FCCSS** for record purposes. **FCCSS** approval is not required for concrete formwork as exempted in Section SIFC-702.3.a.

702.2 Seal and Signature Requirements: The following *fabrication and erection documents* shall be prepared, signed and sealed by ***Registered Design Professionals***:

- Concrete formwork and shoring designs required by Section SIFC-702.3.
- Concrete formwork stripping and reshoring schedules required by Section SIFC-702.3.
- Reinforcement (i.e., tendons) to be post-tensioned.

702.3 Formwork Design Requirements: A ***Registered Design Professional*** with experience in the design of formwork and shoring shall prepare, sign and seal *fabrication and erection documents* specifying formwork and shoring requirements, stripping criteria, and reshoring procedures for structural concrete slabs, beams, walls and columns, except as exempted in Section SIFC-702.3.a. The *fabrication and erection documents* shall indicate formwork system requirements, including shoring design and layout, shoring removal, and reshoring requirements. The design shall include the construction loads to be delivered to the building during construction and shall indicate the strengths of the building elements assumed for formwork and shoring designs and stripping and reshoring schedules.

a. Walls and Columns: Unless required by project specifications or the **SER**, formwork design for walls and columns is only required for walls in excess of 10 feet in height, columns in excess of 15 feet in height, or walls and columns whose formwork supports scaffolding at heights greater than 10 feet above any surrounding surface. Stripping requirements do not apply to walls and columns of any height unless such elements will carry loads other than their own weight at time of stripping or unless required by project specifications or the **SER**.

b. Composite Construction: Shoring for composite slabs and/or beams shall be designed to meet the **SER**'s requirements.

702.4 SER Review and Approval: Prior to concrete construction and/or formwork erection, as appropriate, the *fabrication and erection documents* listed below shall be reviewed and approved by the **SER**:

- Concrete formwork and shoring designs required by Section SIFC-702.3: for compatibility with the *County-approved structural construction documents* and for construction loads delivered to the building.
- Concrete stripping and reshoring designs and schedules required by Section SIFC-702.3: to verify the capacity of the building components, exclusive of the formwork, to carry the construction loads.
- Non-prestressed mild steel reinforcement.
- Reinforcement (i.e., tendons) to be post-tensioned.
- Concrete mix designs, including any accelerators or other admixtures, for each class of concrete to be used. **SER** Approval shall include the following language:

  "I have reviewed the concrete mix designs as prepared by _____ for the above referenced project. My review and approval or approval as noted dated _____ included review and approval of the concrete mix designs _____ including any accelerators or other admixtures, for each class of concrete to be used, for compliance with project requirements."

SIFC-703.0 INSPECTIONS

The **SIER** shall perform the following inspections:

a. **Concrete Formwork:** To verify that the formwork materials, cleanliness, size and installation conform to approved formwork *fabrication and erection documents,* prior to placement of concrete. Inspection reports shall be submitted to **FCCSS** within three working days of each inspection.

b. **Reinforcing Steel:** For compliance with *County-approved construction documents* and approved *fabrication and erection documents*, including welding of reinforcement of the structural seismic-resisting system.

c. **Tendons to be Post-Tensioned:** For compliance with *County-approved construction documents* and approved *fabrication and erection documents*, including full-time monitoring of grouting, consolidation and reconsolidation of bonded prestressing tendons in the structural seismic-resisting system in buildings assigned to Seismic Performance Category C. Inspections shall include tendon size and strength, chair height, tendon profile, tendon snaking elimination, horizontal ties between chairs and condition of sheathing.

d. **Stressing of Tendons:** For compliance with project specifications. Stressing of tendons shall not start before the specified minimum strength of field-cured test cylinders has been achieved and verified by the **SIER** and approved by the **SER**. Full-time monitoring of stressing of tendons is required. Elongation records shall be made and checked against project specifications. Tendon failures or tendon elongations not in compliance with project specifications shall be rejected and the **SER** shall make recommendations in writing for remedial actions.

e. **Concrete:** Placement of concrete, inspections and testing listed in Table SIFC-701. Full-time monitoring shall be required at the point of discharge from trucks or batch plant and at the point of deposit and consolidation of concrete.

TABLE SIFC-701
SPECIAL INSPECTIONS DURING CONCRETING

Required Inspection	Reference for Criteria
Evaluation of concrete strength, except as exempted by BNBC Section 1908.3.1(3).	ACI 318 Section 5.6
Use of proper mix proportions and proper mix techniques	ACI 318 Chapter 4, Sections 5.2, 5.3, 5.4 and 5.8
Proper application techniques	ACI 318 Sections 5.9 and 5.10
Maintenance of specified curing temperatures and techniques	ACI 318 Sections 5.11, 5.12 and 5.13

f. **Weldability of Reinforcement:** If steel reinforcement other than ASTM A706 is to be welded, verify that the weldability of the reinforcement has been determined in accordance with BNBC Section 1906.5.2.

g. Welding of Reinforcement: Full-time monitoring of welding of reinforcing steel in the seismic force-resisting system of buildings of Seismic Performance Category C.

SIFC-704.0 TESTING

704.1 Testing Required: Material tests for concrete properties and strength, for determining the compressive strength of concrete prior to concrete form removal, and for determining adequacy of protection and curing during cold weather, shall comply with the following:

a. Frequency of Testing: Samples for strength tests of each class (concrete mix design) shall be taken not less than once each day, nor less than once for each 150 cubic yards of concrete, nor less than once for each 5,000 square feet of surface area of slabs or walls (for walls, only one side is considered). A "strength test" is the average of the strengths of two cylinders made from the same sample of concrete and tested at 28 days or other test age designated for determination of f'_C.

b. Additional Strength Tests: Additional test cylinders for strength tests shall be cast if required by the ***Architect of Record*** **(AR)**, the **SER**, or *County-approved documents*.

c. Field-Cured Cylinders: Additional field-cured cylinders shall be required to evaluate strengths of concrete prior to concrete form removal (see Section SIFC-705.0) and to determine adequacy of curing and protection of concrete during cold weather (see Section SIFC-706.0).

d. Preparation of Test Cylinders: Concrete samples for test cylinders shall be taken in accordance with ASTM C172. Cylinders for strength tests shall be cast, stored, transported and laboratory-cured in accordance with ASTM C31. Field-cured cylinders shall be cured as closely as possible to the location of placement of the concrete pour they represent, and be exposed as nearly as possible to the same temperature and moisture environment, in accordance with ACI 318 and ASTM C31.

e. Testing of Cylinders: Cylinders shall be tested in accordance with ASTM C39.

704.2 Under-Strength Concrete Test Results: The following procedures shall apply when test results do not comply with the acceptance criteria of ACI 318 for concrete strength.

a. Submittal of Data and Recommendations to FCCSS: The **SIER** shall submit to the **FCCSS** a copy of any records pertaining to under-strength concrete, with written recommendations of the **SER**.

b. Non-Destructive Testing: If non-destructive testing is recommended by the **SER** to confirm the existence or evaluate the in-situ capacity of low-strength concrete, **FCCSS** will only accept testing by penetration resistance in accordance with ASTM C803 (Windsor Probes) or concrete cores obtained and tested in accordance with ASTM C42. The impact hammer (Swiss Hammer) method of testing concrete shall

not be approved by **FCCSS**.

SIFC-705.0 CONCRETE FORMWORK: STRIPPING AND RESHORING

705.1 Operations: Formwork stripping and reshoring shall conform to the *County-approved fabrication and erection documents*.

705.2 FCCSS Approval Required: Specific **FCCSS** approval is required prior to removal of formwork, stripping and reshoring. Requests for **FCCSS** approval shall be submitted in the form of stripping letters (see Section SIFC-705.3).

Exception: Stripping approval is not required for certain walls and/or columns, as listed in Section SIFC-702.3.a.

705.3 Requests for Formwork and Shoring Removal (Stripping Letter):

a. Preparation of Stripping Letter: The **SIER** shall initiate a stripping letter, when concrete strengths have achieved the levels specified by the *County-approved documents*, requesting approval for removal of formwork and/or reshoring operations. This letter shall contain the test results of the field-cured cylinders (and laboratory-cured cylinders when specified by the **SER**) molded for this purpose along with the stripping requirements stated in the *County-approved documents*. The stripping letter shall contain the original seal and signature of the **SIER**. A sample stripping letter is provided on page 41.

A stripping letter shall state that on-site concrete strengths and conditions meet or exceed the project design specifications and design stripping criteria, and shall request approval to remove formwork and/or shoring. In the event of a deficiency, the **SER**'s recommendations shall be included. Stripping letters shall also include the following:

"Design" Data: The project's requirements, including but not limited to the concrete mix design strength and concrete strength/time specifications for stripping, the formwork shoring, reshoring or stripping design criteria established by the ***Registered Design Professional*** responsible for formwork and shoring design, and cold weather concreting methods.

"Actual" Data: The construction results attained for the particular stripping request, including but not limited to temperature logs, concrete cylinder break tests, post-tensioning stressing records, and formwork shoring/reshoring data or calculations.

b. Approval of Stripping Letter: FCCSS approval of the stripping letter is required prior to shoring removal, stripping and reshoring operations. Possession of this County-approved stripping letter does not in any way relieve the **GC** of responsibility to evaluate the removal of formwork and shoring to determine if it is safe and appropriate to do so.

The stripping letter shall be reviewed and approved by the **SER** prior to submittal to the **FCCSS**. Except for post-tensioned concrete construction, the **SER** may waive review of the stripping letter. Waiver of review constitutes **SER** approval of the stripping letter. The **SER** waiver of review shall be conveyed to **FCCSS** in writing prior to commencement of concrete placement for the project.

705.4 Under-Strength Concrete: When field-cured concrete strength test results do not meet formwork and shoring removal requirements, the ***Registered Design Professional*** who designed concrete formwork and shoring may review any additional available information and make a recommendation to the **SER** and to **FCCSS** to allow stripping to proceed, or to postpone stripping until specified concrete strengths are attained. **SER** approval and **FCCSS** approval is required.

705.5 Elongation Records: When structural members to be stripped are of post-tensioned design, elongation records shall be approved by the **SER** and shall be attached to the stripping letter. In the event that tendons are broken, elongations do not meet project specifications, or other deficiencies occur, the ***Registered Design Professional*** who designed the post-tensioned tendons shall address the case and make a recommendation to the **SER** and to **FCCSS. SER** approval and **FCCSS** approval is required.

SIFC-706.0 COLD WEATHER CONCRETING

706.1 When Required: The requirements of this section shall apply after three consecutive days of average daily temperatures below 40^{O}F or when the internal concrete temperature falls below 50^{O}F during curing. Specific provisions shall be made to protect the concrete during cold weather.

The **SIER** shall verify adherence to the following requirements:

a. Minimum Temperature of Concrete: All concrete (slabs, columns, walls, beams, footings, etc.) shall be maintained above 50^{O}F and be kept moist during the first seven (7) days (or three (3) days if high-early strength concrete is used) after placement.

b. Maximum Temperature in Enclosures: If the area is enclosed, the temperature in the enclosure shall be monitored so that it does not exceed 104^{O}F, or as otherwise specified by the **SER**. Proper moisture levels shall be maintained at all times.

706.2 Temperature Readings and Records

a. Temperature Readings Required: The **SIER** shall record temperatures on all concrete until 72 cumulative hours of internal concrete temperatures above 50^{O}F are achieved, or until the average ambient temperature rises above 40^{O}F for more than three successive days. Temperature readings shall be taken at a minimum of four locations along the edge of the slab being monitored. The **FCCSS** may designate additional locations if the concrete pour is unusually large. Temperature readings and

appropriate data shall be recorded on a temperature log sheet which shall be attached to each stripping letter to facilitate the review and approval of the stripping request. A sample temperature log sheet is provided on page 42.

b. Use of Automatic Recorders: Automatic temperature monitoring and maturity metering devices may be utilized only to verify the temperature data required by Section SIFC-706.2.a.

706.3 Testing of Field-Cured Cylinders: For cold-weather concreting, testing of field-cured cylinders is required, to verify adequacy of curing and protection measures. The testing shall be done at seven and twenty-eight days. Cylinders cured in the field for purposes of determining formwork and shoring removal may be used to satisfy this requirement.

SIFC-707.0 COMPLETION OF CAST-IN-PLACE CONCRETE CONSTRUCTION

Upon completion of cast-in-place concrete construction, the **SIER** shall, after review and approval by the **SER**, submit a *Completion Letter* to **FCCSS** and shall indicate the date of completion on the *Final Report of Special Inspections*.

FCCSS
STRIPPING/STRESSING
AUTHORIZATION REQUEST

PROJECT DATA:

Permit No. _____ Job File No. _____
Name _____ General Contr. _____
Address _____ Concrete Contr. _____

POUR DATA:

Mix Designation _____ Strength (psi) _____
Date & Time _____ Volume (cy) _____
Location _____
_____

STRIPPING DATA:

	Design/Required	Actual	Satisfactory/ Unsatisfactory
Age (hrs,days) and/or	_____	_____	_____
Avg. Temp (f) and/or	_____	_____	_____
Strength (psi)	_____	_____	_____

STRESSING DATA:

Concrete Strength	_____	_____	_____
Tendon Elongation	_____	_____	_____

ATTACHMENTS:

Key Plan _____
Concrete Break Plan _____
Stressing Record _____
Temperature Log _____
Stripping Criteria _____
Stripping Authorization _____
Other: _____ _____
_____ _____

NOTES:

_____

Signature & Seal of Special Inspections Engineer of Record

COLD WEATHER CONCRETE SLAB TEMPERATURE LOG

PLACEMENT DATE:		PROJECT _____ PERMIT # _____ DESCRIPTION OF POUR _____						
FINISH TIME:		Station #1	Station #2	Station #3	Station #4	Air Temp Und Slab	Ambient Air Temp	Remarks
DAY 1	12 am							
	4 am							
	8 am							
	12 pm							
	4 pm							
	8 pm							
DAY 2	12 am							
	4 am							
	8 am							
	12 pm							
	4 pm							
	8 pm							
DAY 3	12 am							
	4 am							
	8 am							
	12 pm							
	4 pm							
	8 pm							
DAY 4	12 am							
	4 am							
	8 am							
	12 pm							
	4 pm							
	8 pm							

1) Maintain data for 72 hours after finish of placement.
2) Number of temperature monitoring stations may be increased as needed.
3) Stations shall be located near the outer edges.

CHAPTER 8
PRECAST CONCRETE

SIFC-801.0 GENERAL

801.1 Scope: The requirements of this chapter and BNBC Section 1705.4 shall apply when construction includes precast concrete building elements as listed in Section SIFC-302.3 of this Special Inspections Document.

801.2 Precast Concrete Fabrication: Fabricators for off-site precast concrete elements shall be subject to special inspections as required by Section SIFC-803.0. Site-cast precast concrete elements shall be subject to special inspections during fabrication as required by Section SIFC-804.1.

801.3 Precast Concrete Erection: Precast concrete elements shall be subject to special inspections during erection as required by Section SIFC-804.2.

SIFC-802.0 FABRICATION AND ERECTION DOCUMENTS

802.1 Review and Approval: The concrete mix designs shall be submitted to the ***Registered Design Professional*** responsible for preparation of precast concrete designs and the ***Architect of Record*** **(AR)**, ***Structural Engineer of Record*** **(SER)** and **FCCSS** for review and approval. The *fabrication and erection documents* shall be submitted to the **AR**, **SER** and **FCCSS** for review and approval prior to precast concrete elements' fabrication and/or erection, as appropriate. The **General Contractor (GC)** shall submit two sets of **AR**/**SER**-approved *fabrication and erection documents*, including the concrete mix designs, to **FCCSS** for approval. After County review and approval, **FCCSS** will return one set of *County-approved fabrication and erection documents* for use on the job site. *County-approved documents* shall be used by the ***Special Inspections Engineer of Record*** **(SIER)** to conduct special inspections during construction.

802.2 Preparation of Fabrication and Erection Documents: A ***Registered Design Professional*** with experience in the design of precast concrete structures shall prepare, sign and seal *fabrication and erection documents* for precast concrete building elements, including but not limited to: design drawings and calculations, connection details, design of lifting inserts, rigging requirements, and erection bracing. Documents for site-cast precast concrete shall also include, but are not limited to: element fabrication, form removal, storage and transportation.

802.3 AR and SER Review and Approval: The **AR** and the **SER** shall review the *fabrication and erection documents* and the concrete mix designs for compliance with the architectural and structural design of the building and the *County-approved construction documents*.

SIFC-803.0 INSPECTION OF PRECAST CONCRETE FABRICATORS

Where fabrication of precast concrete elements is being performed off-site on the premises of a fabricator's shop, the **SIER** shall verify that the precast plant has a documented and implemented Quality Control Program and shall notify **FCCSS** in writing of his/her findings. The minimum quality control program shall be in accordance with the Precast/Prestressed Concrete Institute (PCI) Plant Certification Program. Alternatively, the **SIER** may inspect the precast plant at appropriate intervals to verify that materials, methods, products, and quality control comply with project specifications, *County-approved fabrication and erection documents* and PCI MNL-116, "Manual for Quality Control for Plants and Production of Precast and Prestressed Concrete Products," and/or PCI MNL-117, "Manual for Quality Control for Plants and Production of Architectural Precast Products."

SIFC-804.0 INSPECTION OF PRECAST CONCRETE ELEMENTS

The **SIER** shall perform special inspections of precast concrete building elements as required by the VUSBC and BNBC Section 1705.4 during erection for conformance with *County-approved documents*.

804.1 Site-cast Precast Concrete: During fabrication of site-cast precast concrete elements, the **SIER** shall verify the following:

- **Concrete:** Concrete complies with the *County-approved* concrete mix designs and the applicable provisions of Chapter 7 of this Special Inspections Document for cast-in-place concrete.
- **Compressive Strength of Field-Cured Cylinders:** The compressive strength of field-cured cylinders satisfies minimum strength requirements of the *County-approved construction documents* and the lifting requirements and lifting insert specifications of the *County-approved fabrication and erection documents*.
- **Reinforcing Steel:** Reinforcing steel, including lifting inserts, is installed in accordance with *County-approved documents*.

804.2 Erection: During erection of precast concrete elements, the **SIER** shall verify the following:

- **Assembly:** Precast concrete elements are lifted, assembled and braced in accordance with *County-approved fabrication and erection documents*.
- **Welders:** Welders and weld inspectors are certified in accordance with AWS D1.1, Chapter 5, Part C.
- **Connections:** All welded connections, including connections of the seismic-resisting elements of buildings assigned to Seismic Category C, are in accordance with *County-approved documents* and applicable sections of the AWS D1.1 Welding Code, SJI Specifications, AISC, BNBC and VUSBC.

SIFC-805.0 COMPLETION OF PRECAST CONCRETE CONSTRUCTION

Upon completion of architectural and structural precast concrete construction, the **SIER** shall, after

review and approval by the **AR** and **SER**, submit a *Completion Letter* to **FCCSS** and shall indicate the date of completion on the *Final Report of Special Inspections*.

CHAPTER 9
WOOD

SIFC-901.0 GENERAL

901.1 Scope: The requirements of this chapter and BNBC Section 1705.6 shall apply when construction includes wood building elements as listed in Section SIFC-302.5 of this Special Inspections Document.

901.2 Wood Fabrication: Reserved.

901.3 Wood Erection: Wood prefabricated structural elements shall be subject to special inspections during erection as required by Section SIFC-904.0.

SIFC-902.0 FABRICATION AND ERECTION DOCUMENTS

Reserved.

SIFC-903.0 INSPECTION OF WOOD FABRICATORS

Reserved.

SIFC-904.0 INSPECTION OF WOOD ELEMENTS

The **SIER** shall perform special inspections of wood building elements during erection as required by the VUSBC and BNBC Section 1705.6 for conformance with *County-approved documents*. The **SIER** shall verify the following:

- **Connections:** All connections of the seismic-resisting elements of buildings assigned to Seismic Category C are in accordance with *County-approved documents* and applicable sections of the BNBC and VUSBC.

SIFC-905.0 COMPLETION OF WOOD CONSTRUCTION

Upon completion of wood construction, including connections, the **SIER** shall, after review and approval by the **SER**, submit a *Completion Letter* to **FCCSS** and shall indicate the date of completion on the *Final Report of Special Inspections*.

CHAPTER 10
MASONRY

SIFC-1001.0 GENERAL

1001.1 **Scope:** The requirements of this chapter and BNBC Section 1705.5 shall apply when construction includes masonry building elements as listed in Section SIFC-302.4 of this Special Inspections Document.

1001.2 **Loads:** No structural loads shall be imposed on any vertical load carrying member which is less than seven days old unless the masonry strength criteria established by the ***Structural Engineer of Record*** **(SER)** for carrying such loads are satisfied.

1001.3 **Protection During Construction:** Masonry walls shall be protected during construction in accordance with the requirements of SIFC-1303.0.

SIFC-1002.0 FABRICATION AND ERECTION DOCUMENTS

The masonry *fabrication and erection documents*, including construction bracing designs and mortar and grout mix designs, shall be submitted for review and approval to the ***Architect of Record*** **(AR)**, **SER** and **FCCSS** prior to masonry construction. The **GC** shall submit two sets of **SER**-approved *fabrication and erection documents* to **FCCSS**. After County review and approval, **FCCSS** will return one set of *County-approved fabrication and erection documents* for use on the job site. *County-approved documents* shall be used by the ***Special Inspections Engineer of Record*** **(SIER)** to conduct special inspections during construction.

SIFC-1003.0 INSPECTIONS

The **SIER** shall perform special inspections of masonry construction for conformance with *County-approved documents* and appropriate standards in accordance with Table SIFC-1001.

SIFC-1004.0 COLD-WEATHER AND HOT-WEATHER CONSTRUCTION

1004.1 **Cold Weather:** When either the ambient temperature falls below 40^{O}F, or the temperature of masonry units is below 40^{O}F, cold weather construction requirements as specified in Table SIFC-1001 and BNBC Section 2112.3 shall be implemented.

1004.2 **Hot Weather:** when either the ambient temperature equals or exceeds 100^{O}F, or the ambient temperature equals or exceeds 90^{O}F with a wind velocity greater than 8 mph, hot weather construction requirements as specified in Table SIFC-1001 and BNBC Section 2112.4 shall be implemented.

1004.3 **Temperature Records:** The **SIER** shall maintain and submit temperature records

with daily inspection reports.

Table SIFC-1001
SPECIAL INSPECTIONS FOR MASONRY CONSTRUCTION

INSPECTION OR TEST	Referenced Criteria	
	ACI 530/ASCE 5 /TMS 402	ACI 530.1/ASCE 6/TMS 602
MATERIAL		Sec. 2.2
MASONRY STRENGTH		Sec. 1.6
CONSTRUCTION OPERATIONS: Proportioning, mixing consistency of mortar and grout		Sec. 2.3.2.5 Sec. 4.2.2
Application of mortar grout and masonry units		Sec. 2.3.3.3 Sec. 4.3.3
Condition, size, location and spacing of reinforcement	Chapter 8	
Protection of masonry during cold weather or hot weather	Section SIFC-1004.0	Sec. 2.3.2.2 Sec. 2.3.2.3 Section SIFC-1004.0
Anchorage	Sec. 4.2 Sec. 5.14	
Welding of reinforcement, grouting, consolidation and reconsolidation for Buildings assigned to Seismic Performance Category C		

SIFC-1005.0 COMPLETION OF MASONRY CONSTRUCTION

Upon completion of masonry special inspections, the **SIER** shall, after review and approval by the **SER**, submit a *Completion Letter* to **FCCSS** and shall indicate the date of completion on the *Final Report of Special Inspections*.

CHAPTER 11
SOILS AND FOUNDATIONS

SIFC-1101.0 GENERAL

1101.1 **Scope:** The requirements of this chapter and BNBC Sections 1705.7, 1705.8 and 1705.9 shall apply when construction includes soil-related conditions or foundation systems as listed in Section SIFC-302.6 of this Special Inspections Document.

1101.2 **Soils Report:** The soils report as required by BNBC Sections 1705.7 and 1804.1 shall be prepared, signed and sealed by the ***Geotechnical Engineer of Record*** **(GER)** and shall be submitted to the Special Projects Branch of the Division of Design Review, DEM for review and approval prior to permit issuance. The *County-approved soils report*, *County-approved construction documents* and *County-approved fabrication and erection documents* shall be used by the ***Special Inspections Engineer of Record*** **(SIER)** to conduct special inspections during construction.

SIFC-1102.0 FABRICATION AND ERECTION DOCUMENTS

1102.1 **Review and Approval:** The soils and foundations *fabrication and erection documents* shall be submitted to the **GER**, ***Structural Engineer of Record*** **(SER)** and **FCCSS** for review and approval prior to construction, as appropriate. The **General Contractor (GC)** shall submit two sets of **GER**/**SER**-approved *fabrication and erection documents* to **FCCSS** for approval. After County review and approval, **FCCSS** will return one set of *County-approved fabrication and erection documents* for use on the job site. *County-approved documents* shall be used by the **SIER** to conduct special inspections during construction.

1102.2 **Preparation of Fabrication and Erection Documents:** A ***Registered Design Professional*** with experience in the design of deep foundation elements shall prepare, sign and seal *fabrication and erection documents* for pile and pier foundations. The *fabrication and erection documents* for cast-in-place concrete shallow foundations shall be prepared as required in Chapter 7 of this Special Inspections Document.

SIFC-1103.0 SOILS-RELATED DEVIATIONS AND REVISIONS

1103.1 **Review and Approval:** Revisions to the *County-approved soils report* and/or the *County-approved construction documents* and *County-approved fabrication and erection documents* shall bear the seal and signature of the appropriate ***Registered Design Professionals*** and shall be submitted to the Special Projects Branch, the Building Plan Review Branch and/or **FCCSS**, as appropriate, for review and approval prior to continuation of construction. The **FCCSS** Inspector shall determine if the

construction can proceed pending approvals by the Special Projects Branch and/or the Building Plan Review Branch.

1103.2 **Preparation of Revisions:** The **GER** shall prepare, sign and seal revisions to the *County-approved soils report* if on-site soil and/or ground water conditions vary from those presumed to exist based on the initial subsurface exploration and as indicated in the *County-approved soils report*. The **GER** shall coordinate revisions to the *County-approved construction documents* and/or *County-approved fabrication and erection documents* with the **SER** responsible for structural design of foundations and the *Registered Design Professional* responsible for deep foundations, if applicable. The **SER** and/or the *Registered Design Professional* responsible for deep foundations, if applicable, shall prepare, sign and seal revisions to the *County-approved construction documents* and *County-approved fabrication and erection documents*.

SIFC-1104.0 INSPECTIONS

1104.1 **Soils:** Special inspections as specified in the *County-approved Statement of Special Inspections* shall be conducted to determine compliance with the *County-approved soils report* and the *County-approved construction documents*. The **GER** shall perform special inspections of soils for the following:

a. **Subgrade:** Subgrade prior to construction of footings and slabs for compatibility of bearing material and ground water conditions with the *County-approved soils report*.

b. **Fill:** Structural fill material prior to, during, and following its placement for compliance with *County-approved* structural fill specifications and to ensure that the requirements of BNBC Section 1705.7 are met.

c. **Compaction:** Compaction process to determine that materials' quality and in-place density tests comply with the *County-approved* specifications and geotechnical notes and to ensure that the requirements of BNBC Section 1705.7 are met.

1104.2 **Deep Foundations:** The **GER** shall perform special inspections of deep foundations to determine their in-place loadbearing capacity and shall include the following:

a. **Piling:** Special inspections as required by BNBC Sections 1705.8 and 1816.13 shall include inspection of piles before, during, and after driving. Inspection reports shall contain an evaluation of the pile capacity based on driving resistance, and dynamic or static pile testing. Pile driving records shall be submitted to **FCCSS** prior to placement of pile caps.

b. **Piers:** Special inspections as required by BNBC Sections 1705.9 and 1815.0 shall include concrete strength, steel reinforcement, orientation and shape of

caissons, and bearing capacity at the base of the caisson. Inspection reports shall be submitted to **FCCSS** prior to the placement of grade beams.

1104.3 **Shallow Footings and Foundations:** The ***Special Inspections Engineer of Record* (SIER)** or **GER** shall perform structural inspections of footings and foundation systems, including shallow foundations, foundation walls, mats, slabs, etc., as specified in the *County-approved Statement of Special Inspections*. Special inspections of cast-in-place concrete shall be performed in accordance with Chapter 7 of this Special Inspections Document, to include monitoring the placement of concrete, concrete reinforcement, and the dimensions, shapes and locations of footings, slabs, and foundation walls.

SIFC-1105.0 COMPLETION OF SOILS AND FOUNDATIONS CONSTRUCTION

1105.1 **Soils:** Upon completion of soil-related special inspections, the **GER** shall, after review and approval by the **SER** as applicable, submit a *Completion Letter* to **FCCSS** and shall indicate the date of completion on the *Final Report of Special Inspections*.

1105.2 **Deep Foundations:** Upon completion of all piling and caisson deep foundations, the **GER** shall, after review and approval by the **SER** as applicable, submit a *Completion Letter* to **FCCSS** and shall indicate the date of completion on the *Final Report of Special Inspections*.

1105.3 **Shallow Footings and Foundations:** Upon completion of structural special inspections of footings and foundations, the **SIER** or **GER** as applicable shall, after review and approval by the **SER** and/or **GER** as applicable, submit a *Completion Letter* to **FCCSS** and shall indicate the date of completion on the *Final Report of Special Inspections*.

CHAPTER 12
EARTH RETENTION SYSTEMS

SIFC-1201.0 GENERAL

The requirements of this chapter shall apply when construction includes earth retention systems elements as listed in Section SIFC-302.7 of this Special Inspections Document.

SIFC-1202.0 CONSTRUCTION DOCUMENTS

1202.1 **Review and Approval:** The earth retention system *construction documents* shall be submitted for review and approval to the Building Plan Review Branch, DEM prior to permit issuance.

- **SER Review and Approval:** *Construction documents* for earth retention systems which are to become a permanent part of the final structure, including field inspection requirements, shall be reviewed and approved by the ***Structural Engineer of Record*** **(SER)** prior to submission to the Building Plan Review Branch.

1202.2 **Preparation of Construction Documents:** Earth retention system *construction documents*, including the related design calculations, shall be prepared, signed and sealed by a ***Registered Design Professional*** experienced in the design of earth retention systems. In addition to structural design, the *construction documents* shall include the following:

- **Adjoining Properties:** Recommendations for protecting adjoining properties, including existing public and private streets.
- **Slope Protection:** Specification of responsibility for protecting all slopes in accordance with general practice, throughout the course of the project.
- **Dewatering:** Any requirements for dewatering of the excavation that are specified or assumed in the earth retention system design.
- **Installation:** System installation criteria, including allowable inward movement, pile installation and tie-back criteria, and requirements for inspection and monitoring of the earth retention system construction and adjacent properties.

SIFC-1203.0 FABRICATION AND ERECTION DOCUMENTS

1203.1 **Review and Approval:** The earth retention system *fabrication and erection documents* shall be submitted to the **SER** and **FCCSS** for review and approval prior to construction. The **General Contractor (GC)** shall submit two sets of **SER**-approved *fabrication and erection documents* to **FCCSS** for approval. After County

review and approval, **FCCSS** will return one set of *County-approved fabrication and erection documents* for use on the job site. *County-approved documents* shall be used by the ***Special Inspections Engineer of Record*** **(SIER)** to conduct special inspections during construction.

1203.2 **Preparation of Fabrication and Erection Documents:** The ***Registered Design Professional*** responsible for the *construction documents* shall also prepare, sign and seal the *fabrication and erection documents*.

SIFC-1204.0 INSPECTIONS

1204.1 **Special Inspections Required:** In problem soils areas, as defined by the Fairfax County Public Facilities Manual, the ***Geotechnical Engineer of Record*** **(GER)** shall perform the special inspections of the earth retention system. In non-problem soils areas, the **GER** or the **SIER** shall perform the special inspections. Earth retention systems shall have special inspections performed to determine compliance with *County-approved construction documents* and this Special Inspections Document, including the following:

- **Compaction:** Compaction process to determine that materials' quality and in-place density tests comply with the County-approved specifications and geotechnical notes and the requirements of BNBC Section 1705.7.
- **Backfill, Drainage and Waterproofing:** Backfill, foundation drainage systems and waterproofing during and following their placement for compliance with County-approved backfill, foundation drainage systems and waterproofing specifications.

1204.2 **Inspection Reports:** Inspection reports shall be submitted to the appropriate ***Registered Design Professionals*** of record and **FCCSS**.

1204.3 **Deviations:** Deviations from the *County-approved earth retention system construction documents* shall be subject to approval by the appropriate ***Registered Design Professional*** of record and the Building Plan Review Branch, DEM and **FCCSS** prior to work continuing in the affected area. When the earth retention system is to become a permanent part of the final structure, deviations shall also be subject to approval by the **SER**.

SIFC-1205.0 COMPLETION OF EARTH RETENTION SYSTEM CONSTRUCTION

At the completion of the earth retention system construction, the **SIER** shall, after review and approval by the appropriate ***Registered Design Professionals***, submit a *Completion Letter* to **FCCSS**, and shall indicate the date of completion on the *Final Report of Special Inspections*.

- **SER Review and Approval:** When the earth retention system is to become

a permanent part of the final structure, the **SER** shall review and approve the *Completion Letter* prior to submission to **FCCSS**, with approval indicating that the system is acceptable as a structural element of the final structure.

CHAPTER 13
PROTECTION OF THE PUBLIC

SIFC-1301.0 SITE FENCING

The requirements of this section shall apply to all construction sites. Fencing shall be installed prior to the excavation for footings or underground utilities.

The **General Contractor (GC)** shall install construction site fencing for protection of the public:

- Every construction operation shall be enclosed with a non-climbable fence not less than six feet high. The **GC** shall have the option of fencing the total perimeter of a construction site or an area within a minimum of twenty feet away from the structure. The ***Special Inspections Engineer of Record*** **(SIER)** shall notify the **FCCSS** if a construction fence is not installed.

- The criteria outlined above may be modified by the **FCCSS** Supervisor when a natural barrier surrounding a construction site exists. The **GC** shall submit a request for such modification in writing prior to excavation.

- Prior to excavation, any impact barriers required for projects located in close proximity to a public use roadway shall be installed according to the Virginia Department of Transportation (VDOT) Road and Bridge Standards.

SIFC-1302.0 VIRGINIA OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION

The **General Contractor (GC)** shall ensure that the construction site is safe and in compliance with all applicable VOSHA regulations. A copy of the "Virginia Occupational Safety and Health Standards for the Construction Industry" (29 CFR Part 1926) shall be available on the construction site at all times.

SIFC-1303.0 CONSTRUCTION SAFETY FOR MASONRY WALLS

Masonry construction shall comply with applicable VOSHA regulations, including:

a. **Limited Access Zone:** A limited access zone shall be established whenever a masonry wall is being constructed. Entry to the zone shall be limited to employees actively engaged in constructing the wall. No other persons shall be permitted to enter the zone.

- **Zone Location and Extent:** The zone shall be established prior to the start of construction of the wall, on the side of the wall which will be unscaffolded. The zone shall be equal to the height of the wall to be constructed plus four feet, and shall run the entire length of the wall.

- **Zone Duration:** The zone shall remain in place until the wall is laterally supported to prevent overturning and collapse, either by construction bracing or adequate permanent supporting elements of the structure.

b. Bracing of Walls: All masonry walls over eight feet in height shall be laterally braced to prevent overturning and collapse unless the wall has adequate permanent lateral support. Construction bracing shall be erected as soon as masonry construction exceeds eight feet in height. The bracing shall remain in place until permanent supporting elements of the structure are in place.

SIFC-1304.0 TOWER CRANES

1304.1 General

a. Scope: The requirements of this section shall apply whenever a tower crane is to be erected on-site. The **Crane Supplier** and **General Contractor (GC)** are responsible for safe installation and use of the crane and construction methods. The ***Structural Engineer of Record*** **(SER)** is responsible for the structural design strength of the building to support the loads imposed on it by the crane.

b. Permits: A separate building permit is not required for a tower crane and/or its foundation. An electrical permit is required for a tower crane.

1304.2 Documents

Construction documents and *fabrication and erection documents* for the crane and the crane foundation shall be prepared by ***Registered Design Professionals***. Prior to the placement of the crane foundation, the **Crane Owner**, **Crane Contractor**, or the **GC** shall submit one copy of the following information to the **FCCSS** for record purposes:

a. Crane Specifications: Crane specifications including manufacturer's operating model number, hook height, boom length, and manufacturer's specifications relative to overturn moment, slewing moment, vertical load (minimum and maximum), shear per bolt group, uplift per bolt group, compression per corner and horizontal shear (minimum and maximum).

b. Foundations: *Fabrication and erection documents* shall include structural calculations and design of crane foundations. Plans and calculations shall clearly indicate footing dimensions, required compressive strength of concrete, steel reinforcement, and allowable soil bearing pressure. The allowable soil bearing pressure shall be consistent with values shown in the soil test report for the project prepared by the ***Geotechnical Engineer of Record*** **(GER)**.

c. Concrete Mix: Concrete mix design indicating review and approval by the ***Registered Design Professional*** responsible for design of crane foundations.

d. **Location:** *Fabrication and erection documents* shall include the crane location and boom swing.

e. **Tower Cranes Within the Structure:** For cranes located within or supported by the structure, the *fabrication and erection documents* shall indicate the service loads to be delivered to or imposed on the structure, and the proposed method of support. Such *construction documents* shall be reviewed and approved by the ***Structural Engineer of Record*** **(SER)**.

1304.3 Inspections

1304.3.1 **Crane Foundation:** The **SIER** shall conduct crane foundation inspections. Soil and crane footing inspections shall be in accordance with Chapters 7 and 11 of this Special Inspections Document, with inspection reports to **FCCSS** addressing soil bearing capacity, footing construction, and concrete tests. Upon completion of the crane foundation the **SIER** shall, after review and approval by the appropriate ***Registered Design Professionals***, submit a *Completion Letter* to **FCCSS** and shall indicate the date of completion on the *Final Report of Special Inspections*.

1304.3.2 Tower Crane Erection

a. **Components:** Prior to crane erection, the crane base, tower sections, jib and counter jib shall be inspected for structural defects by the **Crane Manufacturer** or a ***Registered Design Professional***.

b. **Assembly:** The crane shall be assembled according to the manufacturer's specifications. All bolts shall be secured in accordance with manufacturer's project specifications, and shall be inspected by the **GC** at erection, thirty days after erection and every ninety days thereafter.

1304.3.3 **Electrical Inspection:** An electrical permit shall be obtained and an inspection by a **Fairfax County Electrical Inspector** shall be performed and approved prior to use of the crane.

1304.3.4 **Completion of Crane Installation:** The **GC** shall, after review and approval by the appropriate ***Registered Design Professionals***, submit a letter of completion of crane installation to **FCCSS**.

1304.4 Safety Rules and Regulations

Virginia Occupational Health and Safety Administration (VOSHA) regulations in Subpart N - Section 1926.550, Subpart N - Section 1926.552 and Subpart Q - Section 1926.700 shall also apply to tower cranes. The **FCCSS** Inspector can require a load test at any time.

CHAPTER 14
OTHER PROVISIONS

SIFC-1401.0 THE STRUCTURAL ENGINEER OF RECORD REVIEW AND APPROVAL STAMP

All *construction/fabrication and erection documents* required to be reviewed and approved by the ***Structural Engineer of Record*** **(SER)** shall bear a review and approval stamp of the **SER**. Examples of acceptable formats for such stamps are given in this section.

The stamp shall contain language as shown in the examples. The stamp has three sections:

- Results of the review in specific terms, with corresponding instructions. This section is mandatory. The words or phrases "Approved", "Approved as Noted" or "Approved as Corrected", and "Disapproved" shall appear. Words or phrases such as "Reviewed", "No exception taken", etc., are not acceptable. The word "fabrication" can be interchanged with the word "construction."

- Clarification statements to explain the scope or qualify the results of review. This section is optional. The text most commonly used by engineering firms includes provisions that the approval is for general conformance with the design intent and the contract requirements, or that the reviewer does not assume responsibility for fabrication or construction processes, or that the contractor is responsible for coordination of trades and satisfactory execution of the work.

- Signature and date lines. The signatory area shall be completed. This section is mandatory.

Note: The requirement for review and approval by the **SER**, and the format of the **SER** review/approval stamp, is in addition to the seal and signature requirement for documents required to be prepared by ***Registered Design Professionals***.

APPROVAL FOR GENERAL COMPLIANCE WITH STRUCTURAL CONTRACT DOCUMENTS

[ ] APPROVED	Fabrication may proceed as shown.
[ ] APPROVED AS CORRECTED	Fabrication may proceed based on corrections indicated.
[ ] APPROVED AS CORRECTED RESUBMIT FILE COPY	Fabrication may proceed based on corrections indicated. Correct submission and resubmit for record purposes only.
[ ] DISAPPROVED	Fabrication may not proceed. Correct submission for further review.
[ ] REVIEWED FOR INFORMATION	Approval not required. Accepted for information purposes only.

Approval is for general compliance with the structural contract documents only. This approval assumes no responsibility for dimension, quantities and conditions that pertain to fabrication and installation or for processes and techniques of construction. The Contractor is responsible for coordination of the work of all trades and the performance of this work in a safe and satisfactory manner.

BY _____

DATE _____

_____

(NAME OF COMPANY)

APPROVAL FOR DESIGN CONFORMITY

[ ] APPROVED

[ ] APPROVED AS NOTED

[ ] REVISE AS NOTED AND RESUBMIT

[ ] REJECTED/RESUBMIT AS SPECIFIED

[ ] FURNISH ( ) CORRECTED COPIES

Notations do not authorize changes to contract sum.

Submittal was reviewed for design conformity and general conformance to contract documents only. The Contractor is responsible for confirming and correlating dimensions at job sites for tolerances, clearances, quantities, fabrication processes and techniques of construction, coordination of his work with other trades and full compliance with contract documents.

BY _____

DATE _____

_____

(NAME OF COMPANY)

APPROVAL FOR DESIGN CONCEPT	
[ ] APPROVED	Final approval. Fabrication may proceed on work as shown.
[ ] APPROVED AS NOTED	Fabrication may proceed on the basis of corrections indicated.
[ ] DISAPPROVED	Fabrication may not proceed. Revisions shall be made and submitted for further check.

Approval is only for conformance with the design concept of the project and compliance with the information given in the contract documents. The contractor is responsible for dimensions to be confirmed and correlated at the job sites, for information that pertains solely to the fabrication processes or to techniques of construction, and for the coordination of the work of all trades.

BY _____

DATE _____

_____

(NAME OF COMPANY)

SIFC-1402.0 ON-SITE CONCRETE BATCH PLANTS

1402.1 **Scope:** The requirements of this section, ASTM C94 and ASTM C685 shall apply whenever a concrete batch plant is erected on-site.

1402.2 **Inspections:** Prior to the manufacture of concrete, the ***Special Inspections Engineer of Record*** **(SIER)** shall inspect the concrete batch plant site and batch plant and *certify* in writing to **FCCSS**:

a. The scales are accurate.

b. The batch plant is capable of producing concrete in compliance with ACI 318 Section 5.8.3, and the batch plant complies with requirements of ASTM C94 and ASTM C685.

c. Access roads are at least twenty feet wide, located such that delivery trucks will not contaminate stock piles. Mud mats are large enough to prevent contamination of stock piles.

d. Barricades and warning devices are installed to prevent workers from entering the working radius of the scraper boom. Stock piles are separated by walls having a 45 degree minimum angle from the leading edge of the stock pile, and extending to the outside perimeter of the boom radius.

SIFC-1403.0 FIRE PROTECTION

The requirements of this section shall apply to all commercial buildings under construction.

1403.1 **Fire Extinguishers:** The **General Contractor (GC)** shall be responsible for the installation and maintenance of portable fire extinguishers during construction as required by BNBC Section 3305.2.

1403.2 **Standpipes:** The **GC** shall be responsible for the installation and maintenance of standpipes during construction as required by BNBC Section 3305.3. Standpipes shall be installed during construction as the work of the building progresses, beginning at 40 feet. The standpipe system shall be carried up with each floor and shall be installed and ready for use as each floor progresses. Standpipes shall be extended as construction progresses to within one floor of the highest point of construction having secured decking or flooring. Free access from the street to such standpipes shall be maintained at all times. Materials shall not be stored within 5 feet of any fire hydrant or in the roadway between such hydrant and the center line of the street. Failure to comply with this section shall result in the immediate stop of all work on the project until such time as the standpipes are properly placed.

SIFC-1404.0 OCCUPANCY REQUIREMENTS FOR NEW BUILDINGS AND ALTERATIONS TO EXISTING BUILDINGS

The requirements of this section shall apply for all commercial construction projects of all Use Groups and for residential construction projects of Use Group R-1 and R-2, pursuant to the Fairfax County Zoning Ordinance (Chapter 112 of the Code of the County of Fairfax).

1404.1 Non-Residential Use Permit

a. A *Non-Residential Use Permit* (Non-RUP) is required prior to use or occupancy of a commercial building (Residential Use Permits for a residential building).

b. A new Non-RUP is required as follows:

- prior to occupancy of a new building or tenant space; or
- prior to a change of Use Group of a building or tenant space; or
- whenever a building or tenant space has either an increase or decrease in gross floor area; or
- whenever a building or tenant space has a change in proprietorship.

c. In other instances of renovations of an existing building, structure or tenant space where such a building, structure or tenant space has a valid certificate of use and occupancy, final inspection approvals serve as the certificate of use and occupancy, and a new Non-RUP is not required.

d. A "building" is identified by a unique street address. It is the responsibility of the building owner to file for and obtain a Non-RUP for a building shell prior to any tenant occupancies. It is the responsibility of building tenants to file for and obtain a Non-RUP for individual tenant spaces prior to use or occupancy. For purposes of this chapter, the terms "tenant space," "tenant occupancy," etc., refer to all space and occupancy, whether occupied by a tenant or an owner.

1404.2 Non-RUP Procedural Requirements

1404.2.1 Building Shell Final Inspections

A Non-RUP for a building shell may be obtained after final inspections are performed and approved by the following Fairfax County organizations:

- Electrical Inspections Section, Commercial Inspections Branch of the Division of Inspection Services, DEM.
- Mechanical Inspections Section, Commercial Inspections Branch of the Division of Inspection Services, DEM.
- Plumbing Inspections Section, Commercial Inspections Branch of the Division of Inspection Services, DEM.
- Elevator Inspections, Mechanical Inspections Section, Commercial Inspections Branch of the Division of Inspection Services, DEM.

- Fire Protection Systems Testing Section, Fire Prevention Division of the Fire and Rescue Department.
- Department of Health Services (applicable only to food establishments, medical buildings, health spas, etc.).
- For buildings subject to special inspections, **FCCSS** approval, after review and approval by the appropriate ***Registered Design Professionals***, of the *Final Report of Special Inspections* submitted by the ***Special Inspections Engineer of Record* (SIER)**.

Note: The above items may be in any order, but all are required prior to the following:

- Inspections Section, of the Fire Prevention Division of the Fire and Rescue Department. The ***Owner*** shall request shell occupancy inspection prior to occupancy, for Use Groups A, E, H or I; or within five working days after occupancy, for Use Groups B, F, M, S or U.
- Building Inspections, Critical Structures Section, Commercial Inspections Branch of the Division of Inspection Services, DEM.

Note: The above items are required prior to:

- Public Utilities Inspections Branch of the Division of Design Review, DEM.

After all the above items are satisfied, application may be made for the Non-Residential Use Permit.

- The owner shall request occupancy load posting inspection by **FCCSS** within five working days after occupancy for rooms of assembly or education.

1404.2.2 Minimum Building Shell Requirements for Non-RUP

a. Prior to issuance of a building shell Non-RUP, the following building, fire, and life safety features shall be completed:

I. Exit stairs;
ii. Grade exit lobbies;
iii. Grade exit corridors or passageways;
iv. Elevator shaft enclosures;
v. Required exit lights and emergency lighting;
vi. Elevator emergency recall system or elevators must be locked out of service;
vii. Required fireproofing of structural members in the core and occupied areas;
viii. Firestopping of wiring, piping and other penetrations, both vertical and horizontal, in floors, ceilings and walls;
ix. Removal of combustible trash and construction debris;
x. Storage areas complying with the Material Storage requirements (Section 1405.2) of this chapter;
xi. Firefighting, fire detection, and fire suppression systems complying with the Fire Protection and Safety Requirements for Partially Occupied Buildings (Section 1405.0) of this chapter.

b. All sprinklers, standpipes, alarms, signaling systems and other required fire suppression or firefighting systems shall be activated throughout the entire structure prior to building shell Non-RUP. Under no conditions shall any fire suppression or firefighting system be shut off in any occupied area, unless the valve or other activation control mechanism is continuously manned, during the period the system(s) is(are) shut off. If this provision is deemed unworkable, any work shall be done after normal business hours. Subject to approval by the Fire Prevention Division and by **FCCSS**, a fire watch shall be instituted during the time any fire suppression or firefighting system is out of service, with the number of persons required for fire watch such that the entire building shall be checked every hour; residential buildings of Use Group R-1 and R-2 and educational buildings of Use Group E shall be checked every half hour. The **General Contractor (GC)** shall submit a written record of fire watch activities to the Fire Prevention Division. The **GC** shall also notify the Fairfax County Emergency Operations Center when any fire suppression or firefighting system is placed out of service.

c. The unoccupied portion of the building shall comply with the Fire Protection and Safety Requirements for Partially Occupied Buildings (Section SIFC-1405.0).

1404.2.3 Tenant Space Final Inspections

A Non-Residential Use Permit for any tenant in a building may be obtained only after the following conditions have been met:

a. A Non-Residential Use Permit for a building shell has been issued.

b. Interior work in this tenant's space, including any modifications to fire protection systems, has been inspected and approved by the appropriate Fairfax County organizations:

- Electrical Inspections Section, Commercial Inspections Branch of the Division of Inspection Services, DEM.
- Mechanical Inspections Section, Commercial Inspections Branch of the Division of Inspection Services, DEM.
- Plumbing Inspections Section, Commercial Inspections Branch of the Division of Inspection Services, DEM.
- Elevator Inspections, Mechanical Inspections Section, Commercial Inspections Branch of the Division of Inspection Services, DEM.
- Fire Protection Systems Testing Section, Fire Prevention Division of the Fire and Rescue Department.
- Department of Health Services (applicable only to food establishments, medical buildings, health spas, etc.).

Note: The above items may be in any order, but all are required prior to the following:

- Inspections Section, of the Fire Prevention Division of the Fire and Rescue Department. The tenant shall request occupancy inspection prior to

occupancy, for Use Groups A, E, H or I; or within five working days after occupancy, for Use Groups B, F, M, S or U.

- Building Inspections, Critical Structures Section, Commercial Inspections Branch of the Division of Inspection Services, DEM.

After all the above items are satisfied, application may be made for the Non-Residential Use Permit.

- The tenant shall request occupancy load posting inspection by **FCCSS** within five working days after Non-RUP for rooms of assembly or education.
- The unoccupied portion of the building shall comply with the Fire Protection and Safety Requirements for Partially Occupied Buildings (Section SIFC-1405.0).

SIFC-1405.0 FIRE PROTECTION AND SAFETY REQUIREMENTS FOR PARTIALLY OCCUPIED BUILDINGS

1405.1 **General:** The existing fire protection, egress paths, and fireresistant construction protection required for occupied areas shall be maintained at all times while ongoing construction in unoccupied areas is in progress.

1405.2 **Material Storage:**

a. Non-combustible Storage - Area Limitations

Non-combustible materials are those that do not support combustion and are not readily ignitable. Examples of non-combustible materials are: drywall; metal studs, fire retardant lumber; metal doors; solid core wood doors, including packaging aids without voids; sheet metal ducts; masonry; non-combustible insulation; plumbing fixtures; light fixtures wrapped in tight plastic; and other materials of similar characteristics.

Non-combustible storage may be unlimited in area; however, the weight of material stored shall not exceed the structural design capacity of the floor.

b. Combustible Storage - Area Limitations

Combustible materials are those that readily support combustion or are readily ignitable. Examples of combustible materials are: hollow core wood doors; wood studs, paneling and other wood products; carpet and padding; vinyl core trim and base; insulation with combustible vapor facing; non-combustible products wrapped in large quantities of combustible packaging or storage aids, and other materials of similar characteristics.

Combustible storage shall be limited to 2,500 cubic feet or 10 percent of the floor area, whichever is smaller; however, the weight of material stored shall not exceed the

structural design capacity of the floor. The ***Owner*** shall be responsible for obtaining a Fire Prevention Code Permit for combustible storage exceeding these limitations pursuant to the Virginia Statewide Fire Prevention Code. Combustible storage areas located on an occupied floor shall be separated from the occupied areas by one-hour fireresistance rated fire partitions.

c. Storage Arrangement:

Storage materials, both combustible and non-combustible, shall be arranged in neat piles with the floor kept broom-clean and free of construction debris. Egress aisles shall be maintained. Storage shall be kept a minimum of two feet below ceilings, sprinkler heads, or the lowest member of the floor-ceiling or roof-ceiling assembly.

1405.3 Fire Suppression System Requirements:

a. In fully sprinkler-protected buildings, sprinkler protection shall be operational at all times.

b. Sprinkler heads shall be located within 12 inches of the floor or roof deck above, in either the pendant or upright position. If the ceiling grid is in place, the sprinkler shall be installed in the pendant position.

c. The use of commercial, rapid or quick response sprinkler heads, located at the future ceiling line without ceiling tiles in place, (except at the sprinkler head location), shall be subject to approval by the Fire Prevention Division.

d. Where in the opinion of the **FCCSS** Inspector or the Inspector of the Fire Prevention Division, the type or quantity of combustible storage exceeds the limitations of the existing sprinkler system design, the sprinkler system in these areas shall be modified to conform with the fire hazard posed by the combustible storage.

e. In areas used for non-combustible storage or in unfinished tenant areas, the sprinkler heads may be located at the future level of the suspended ceiling.

1405.4 Special Cases: The criteria for fire prevention measures set forth in this document cover the majority of field conditions. It is conceivable that individual situations may arise which shall be evaluated for compliance on a case-by-case basis.

CHAPTER 15
EXTERIOR INSULATION AND FINISH SYSTEMS

SIFC-1501.0 GENERAL

1501.1 **Scope:** The requirements of this chapter and BNBC Section 1705.13 shall apply when construction includes exterior insulation and finish systems (EIFS) elements as listed in Section SIFC-302.8 of this Special Inspections Document.

1501.2 **EIFS Fabrication:** Fabricators of EIFS prefabricated panels and elements shall be subject to special inspections as required by Section SIFC-1504.0. Prefabricated EIFS panels and elements shall be subject to special inspections during fabrication as required by Section SIFC-1505.0.

1501.3 **EIFS Erection and Application:** All EIFS elements shall be subject to special inspections during erection and application as required by Section SIFC-1505.0.

SIFC-1502.0 CONSTRUCTION DOCUMENTS

1502.1 **Review and Approval:** The *construction documents* required to be submitted to the Building Plan Review Branch, DEM for review and approval prior to permit issuance shall include EIFS information and details as required by Section SIFC-1502.2. After County review and approval, the Building Plan Review Branch will retain one set and return two sets of *County-approved construction documents* for use on the job site.

1502.2 **Preparation of Construction Documents:** *Construction documents* for the EIFS, including the related design calculations, shall be prepared, signed and sealed by a ***Registered Design Professional***. The *construction documents* shall include, but not be limited to, the following information and details:

- Copy of EIFS research report.
- Design wind pressure on the EIFS and related calculations.
- Waterproofing and drainage provisions including weepholes and any limitations on EIFS or building materials, especially substrate and building framing, for prevention of moisture infiltration to building sheathing or framing.
- EIFS material types and thicknesses, including flame spread and smoke development ratings.
- Details consistent with intent of the research report and manufacturer's instructions for method of installation at all openings, corners and panel terminations.
- Location and configuration of control joints, weepholes and flashing.
- Typical cross-sectional configuration showing all components of the wall. All

building sheathing and framing materials in contact with the EIFS shall be dampproofed in accordance with BNBC 1813.0. Wood shall also be naturally durable or preservative-treated in accordance with BNBC 2311.0.

- Typical wall configuration showing details of system penetrations.
- System installation criteria, including ambient temperature limitations.

SIFC-1503.0 FABRICATION AND ERECTION DOCUMENTS

1503.1 **Review and Approval:** The **General Contractor (GC)** shall submit two sets of EIFS *fabrication and erection documents* to **FCCSS** for review and approval prior to EIFS elements' fabrication, erection or application, as appropriate. The **AR** and the **SER** shall review and approve the *fabrication and erection documents* for compliance with the architectural and structural design of the building and the *County-approved construction documents* prior to submission to **FCCSS**. After County review and approval, **FCCSS** will return one set of *County-approved fabrication and erection documents* for use on the job site.

1503.2 **Preparation of Fabrication and Erection Documents:** The ***Registered Design Professional*** responsible for preparation of the EIFS *construction documents* shall also prepare, sign and seal the EIFS *fabrication and erection documents.* Information shall include, but not be limited to:

- Reference to research report number and identification of EIFS manufacturer.
- For prefabricated panels or elements, complete fabrication and erection details, including element fabrication, storage and transportation, rigging requirements and erection bracing.
- EIFS manufacturer installation and application instructions.
- Layout and details for application of insulation boards.
- Details for control joints, flashing, weepholes, sealants and caulking.
- System installation criteria, including ambient temperature limitations.
- Criteria and timing for special inspections during construction.

SIFC-1504.0 INSPECTION OF EIFS FABRICATORS

Where fabrication of EIFS panels or elements is being performed off-site on the premises of a fabricator's shop, the **SIER** shall verify that the EIFS plant has a documented and implemented Quality Control Program and shall notify **FCCSS** in writing of his/her findings. The **SIER** may inspect the EIFS plant at appropriate intervals to verify that materials, methods, products, and quality control comply with project specifications and *County-approved documents*.

SIFC-1505.0 INSPECTION OF EIFS ELEMENTS

County-approved documents shall be used by the ***Special Inspections Engineer of Record*** **(SIER)** to conduct special inspections during construction. EIFS installation shall be performed by trained

applicators. The **SIER** shall perform special inspections of EIFS building elements as required by the VUSBC and BNBC Section 1705.13 during erection for conformance with *County-approved documents,* including the information required by Sections SIFC-1502.2 and 1503.2.

SIFC-1506.0 COMPLETION OF EIFS CONSTRUCTION

Upon completion of EIFS construction, the **SIER** shall, after review and approval by the **AR** and **SER**, submit a *Completion Letter* to **FCCSS** and shall indicate the date of completion on the *Final Report of Special Inspections*.

APPENDIX A
STANDARDS PROMULGATING ORGANIZATIONS

A2LA **AMERICAN ASSOCIATION FOR LABORATORY ACCREDITATION**
656 Quince Orchard Drive, Suite 704
Gaithersburg, Maryland 20878

ACI **AMERICAN CONCRETE INSTITUTE**
P.O. Box 9094
Farmington Hills, Michigan 48333
3880 International Way
Farmington Hills, Michigan 48331

AISC **AMERICAN INSTITUTE OF STEEL CONSTRUCTION, INC.**
One East Wacker Drive, Suite 3100
Chicago, Illinois 60601-2001

AISI **AMERICAN IRON AND STEEL INSTITUTE**
P.O Box 4237
Chestertown, Maryland 21690

ASCE **AMERICAN SOCIETY OF CIVIL ENGINEERS**
345 East 47th Street
New York, New York 10017

ASNT **AMERICAN SOCIETY FOR NON-DESTRUCTIVE TESTING**
4153 Arlingate Plaza
Caller #28518
Columbus, Ohio 43228

ASTM **AMERICAN SOCIETY FOR TESTING AND MATERIALS**
100 Barr Harbor Drive
West Conshohocken, Pennsylvania 19428

AWS **AMERICAN WELDING SOCIETY**
550 N.W. LeJeune Road
P. O. Box 351040
Miami, Florida 33126

BIA **BRICK INSTITUTE OF AMERICA**
11490 Commercial Park Drive, Suite 300
Reston, Virginia 22091

BOCA **BUILDING OFFICIALS AND CODE ADMINISTRATORS INTERNATIONAL, INC.**
4051 West Flossmoor Road
Country Club Hills, Illinois 60478-5795

CASE **COALITION OF AMERICAN STRUCTURAL ENGINEERS**
American Consulting Engineers Council
1015 Fifteenth Street N.W., Suite 802
Washington, DC 20005

CCRL **CEMENT AND CONCRETE REFERENCE LABORATORY**
National Institute of Standards and Technology
Gaithersburg, Maryland 20899

NVLAP **NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM**
National Institute of Standards and Technology
Gaithersburg, Maryland 20899

NCMA **NATIONAL CONCRETE MASONRY ASSOCIATION**
2302 Horse Pen Road
Herndon, Virginia 22070

NFiPA **NATIONAL FIRE PROTECTION ASSOCIATION**
11 Tracey Drive
Avon, Massachusetts 02322
Batterymarch Park
Quincy, Massachusetts 02269

NICET **NATIONAL INSTITUTE FOR CERTIFICATION IN ENGINEERING TECHNOLOGIES**
1420 King Street
Alexandria, Virginia 22314

NIST **NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY**
(formerly National Bureau of Standards)
Gaithersburg, Maryland 20899

PCI **PRECAST/PRESTRESSED CONCRETE INSTITUTE**
175 West Jackson Boulevard
Chicago, Illinois 60604

PTI **POST-TENSIONING INSTITUTE**
1717 W. Northern Avenue, Suite 114
Phoenix, Arizona 85021-5471

SDI **STEEL DECK INSTITUTE**
P.O. Box 9506
Canton, Ohio 44711

SJI **STEEL JOIST INSTITUTE**
1205 48th Avenue North, Suite A
Myrtle Beach, South Carolina 29577

TMS **THE MASONRY SOCIETY**
3775 Iris Avenue, Suite 6
Boulder, Colorado 80301-2043

TPI **TRUSS PLATE INSTITUTE**
583 D'Onofrio Drive, Suite 200
Madison, Wisconsin 53719

VOSHA **VIRGINIA OCCUPATIONAL SAFETY AND HEALTH AGENCY**
Department of Labor and Industry
P.O. Box 12064
Richmond, Virginia 23241

WACEL **WACEL**
(formerly Washington Area Council of Engineering Laboratories)
P.O. Box 30494
Bethesda, Maryland 20824

APPENDIX B
USER FORM
AND
EMERGENCY INFORMATION CARD

Customer Survey Form -

SPECIAL INSPECTIONS: Implementation in Fairfax County/1996 Edition

This Special Inspections Document was written for you, the user. If you have a question, need an interpretation or have a suggestion on how to improve this Special Inspections Document, Fairfax County would like to hear from you. Please use this form to make additional copies as needed and forward your comments to:

CHIEF, COMMERCIAL INSPECTIONS BRANCH
DIVISION OF INSPECTION SERVICES
DEPARTMENT OF ENVIRONMENTAL MANAGEMENT
12055 Government Center Parkway, 4th Floor
Fairfax, Virginia 22035-5504

Telephone: (703) 324-1910
Telefax: (703) 324-1846

G INTERPRETATION REQUESTS **G** SUGGESTED REVISIONS

Page	Chapter Section/Paragraph	Description Of Question/Suggestion

Your Name: _____ Telephone: _____

Affiliation: _____ Telefax: _____

Address: _____

_____ Date: _____

EMERGENCY PHONE PROCEDURES

Post at each Job Phone Location

Dial 911 for POLICE - FIRE - AMBULANCE assistance
Dial 698-2900 - Poison Center

Be Ready to Provide the Following Information:

BASIC JOB SITE INFORMATION: (to be completed by Superintendent before posting at phone locations)

1. CONSTRUCTION SITE STREET ADDRESS _____
2. MAJOR CROSS STREETS _____
3. NAME OF GENERAL CONTRACTOR _____
4. TELEPHONE NUMBER FROM WHICH CALL IS BEING MADE (Usually Job Phone) _____

THE FOLLOWING SPECIFIC INFORMATION MAY BE REQUIRED BY THE EMERGENCY 911 DISPATCHER:

1. NAME OF PERSON MAKING THE CALL?
2. WHAT HAPPENED? (fall, cave-in, structure collapse, electrical, bleeding, heart attack)
3. HOW MANY PERSONS INJURED?
4. CONDITION OF INJURED?
5. HELP/FIRST AID ALREADY STARTED?
6. LOCATION OF INCIDENT ON SITE.
7. PLACE OF ENTRY TO SITE.
8. EQUIPMENT ASSISTANCE AVAILABLE.

REMAIN CALM!

LET THE DISPATCHER TELL YOU TO HANG-UP